NATIONAL NETWORK OF Partnership Schools JOHNS HOPKINS UNIVERSITY

# SAMPLER
## FAMILY AND COMMUNITY INVOLVEMENT IN SCIENCE

## Scientifically Speaking . . .

### Science is exciting, important, and current.
### With partnership actions, students apply and learn it!

Many parents struggle to help their children in science. At the elementary level, science is often overlooked, as teachers and students spend most of their time in reading, language arts, and math. Science homework is rarely assigned in the early grades. In secondary schools, science is taught on a regular schedule, but middle and high school teachers may not be aware of how parents can interact with and motivate students to do their best in science.

It helps students to connect with parents and the community on science activities. All parents have knowledge about science that can be shared with students at home, at work, and at play. Community experts can provide many resources to assist and enrich classroom instruction. Museums, hospitals, zoos, park and recreation agencies, non-profit organizations, local colleges and universities, business partners, and many others may collaborate with districts, schools, and teachers at every grade level to support and enrich the science curriculum and students' experiences.

Schools in NNPS have, over the years, shared many *Promising Partnership Practices* in science. The examples in this *Sampler*, in alphabetical order include various ways to organize field trips, family nights, science fairs, workshops for parents, and other creative activities for students and families to do together. Science classroom units may end with culminating "showcases" for students to demonstrate for parents what they learned.

**Improve Classroom Teaching and Students' Science Skills.** The sample activities were conducted by school-based Action Teams for Partnerships (ATPs) and science teachers to engage students and parents across grade levels. Individual science teachers and grade-level teams may adapt the activities to strengthen partnerships with their own students' families in order to improve students' science skills and attitudes.

For example, a science teacher at any grade level may work with one or more community partners—(e.g., science museum, TV weather station, police crime lab)—to link a particular science unit with real world scientists, career awareness, and hands-on activities for students and parents, as explained in several activities in this *Sampler*.

The ten activities in this *Sampler* were effectively implemented in schools working to establish goal-linked partnership programs. They should help any school team or individual teacher feel confident about engaging parents and community partners with students in science. In this way parents gain an understanding of their child's science curriculum and become more comfortable about talking with their child about science at home. When students conduct science explorations with a family partner and have fun doing so, they are more likely to improve their attitudes about science and take more science courses over time.

The ***Sampler*** includes a few of many excellent science involvement activities in the annual collections of best practices. For more ideas, see www.partnershipschools.org. Follow the paths to Success Stories and to a particular year's book and click on Science.

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# Review of Research:
# Family and Community Involvement in Science

Steven B. Sheldon, NNPS Director of Research

There are fewer studies on the effects of school, family, and community partnerships on science attitudes and achievement than on the results of involvement in reading or math. Given the current emphasis on student achievement on science tests, it is important to understand the results of the studies that have been conducted. To date, studies support the importance of family involvement with students in science and the need for schools to actively work to engage all families in their children's science education (Sheldon, 2009).

**Involvement Improves Student Attitudes.** As with math, family and community involvement may affect students' attitudes about science and, in turn, their achievement in science and the number of science courses they take. Studies showed that parents play important roles in developing children's science attitudes by engaging in science activities at home and by taking their children to libraries and to science museums. Also, parents' attitudes about their child's ability and interest in science were shown to strongly predict children's self-perceptions of themselves in learning science.

**Involvement Increases Student Achievement.** One study using national data from students in grades 4, 8, and 12 found that students from low-income families did not perform as well in science as did more affluent peers. The study also showed that parent education and measures of the home environment helped compensate for the effects of income and minority status. That is, students from families with low incomes and from all racial and ethnic groups had higher science scores if their parents had more formal education and/or encouraged their education at home (Von Secker, 2004). Importantly, the study found that without these positive family influences, the achievement gap between students from low-income and affluent families widened from grades 4 through 12. The findings suggest that family involvement may be especially important for students who are most at risk of experiencing failure in science.

Teachers can have a significant positive effect on students' science achievement if they involve families with students on science homework. Results from a quasi-experimental study of TIPS-Science Interactive Homework showed that families whose middle school students received weekly interactive homework in science were significantly more involved with their children on science compared to families of students in the control group whose teachers did not use TIPS. This study also found that TIPS students had higher science achievement test scores than their control-group peers (Van Voorhis, 2011). The findings suggest that schools can and should encourage more science-focused family involvement at home to increase students' completion of science homework, boost discussions about science at home, and increase students' success in science in the middle grades. Learn more about TIPS Interactive Homework for science in the middle grades at www.partnershipschools.org. Click on TIPS.

For details on these and other studies and complete references, see:

Sheldon, S. B. (2009). Improving student outcomes with school, family, and community partnerships: A research review. Pp. 40-56 in Epstein, J. L. et al. *School, family, and community partnerships: Your handbook for action, third edition.* Thousand Oaks, CA: Corwin Press.

Van Voorhis, F. L. (2011). Costs and benefits of family involvement in homework. *Journal of Advanced Academics, 22*, 220-249.

Von Secker, C. (2004). Science achievement in social contexts: Analysis from National Assessment of Educational Progress. *Journal of Educational Research, 98*, 67-78.

# A NIGHT UNDER THE MILKY WAY

**Salisbury Middle School**
**Salisbury, Maryland**

Much in the way that stars pull together to form galaxies, three events were clustered into one shining evening at Salisbury Middle School's second annual Night Under the Milky Way this year. By scheduling parent-teacher conferences, a family dinner, and a science expo back-to-back-to-back, the school's Action Team for Partnerships (ATP) pulled off a mega-event that was, by all accounts, stellar.

Student-constructed displays of galaxies and the planets of the solar system constellated the walls of the school's classrooms, hallways, and lobby, while parents spent the first 60 to 90 minutes meeting with their children's teachers. To receive a ticket for the free dinner—pizza, salad, and dessert prepared and served by the PTA, parents first had to visit with at least two of their children's teachers.

The big draw for students and their families, however, was the main event. With the assistance of Salisbury community partners, including NASA and the local police lab, over 15 activity areas were set up around the school, each dedicated to a different topic in the science curriculum. Science was scheduled to be tested for the first time on the 2009 Maryland State Assessment (MSA) for 8th graders. The science activities and information were targeted to the 8th grade students, as well as to the 6th and 7th graders, who would take the test in the future.

At each activity booth, students and parents worked together to complete various assignments, which the ATP planners dubbed "missions." On these missions, families collaborated on questionnaires, used technology, built and launched paper rockets with NASA, observed the night sky in a planetarium that had been set up in the gym, and more. Through the PTA, a number of parents also staffed the "mission centers."

The missions bolstered other important skills on the MSA by assisting students with their writing, reading, math, and critical thinking skills as they conducted research and analyses, drew conclusions, and prepared summaries. At the same time, parents developed a better understanding of the academic program their children were responsible for at school and gained ideas of how to reinforce the curriculum at home.

The event contributed to an additional positive side effect on overall parent involvement: PTA participation, for example, increased by 42% for the year.

Technology was an important part of both the event and the publicity. Administrators and teachers were costumed as astronauts and aliens for a series of humorous "television commercials" that announced the occasion. These publicity spots featured special appearances by Darth Vader, Princess Leia, and cameos by other Salisbury Middle School students.

A partnership with the Discovery Channel provided the school with raffle prizes—including the grand prize, a computerized telescope. All star-faring students who completed five missions could enter the drawing as a reward for their success.

Any who doubt the bravery of these enterprising cadets should heed this 6th grader's testimony: "Chocolate chip cookie mining in the Moon Archaeology Mission was awesome! I loved eating my moon!"

 

# DESSERT UNDER THE STARS

**William Hubbard Middle School**
**Forsyth, Georgia**

What do you get when you combine astronomy, earth science, and life sciences with delicious desserts prepared by dads? You get Dessert under the Stars—an event that students and parents at William Hubbard Middle School enjoyed this year.

Students at William Hubbard traditionally achieve high science test scores and teachers wanted to make sure that this subject remained popular and one in which students excelled. A grandparent, who is also an avid astronomer, volunteered to share his expertise of the night sky. This prompted discussions about a science night with hands-on activities for students and families. Members of the school's Action Team for Partnerships (ATP) decided to capitalize on this enthusiasm to create a school-wide event, sweetened with the prospect of desserts by dads.

On this night of science, ATP members welcomed families and assigned them to one of five groups. After a brief welcome, every group moved through five stations with a student leader. Each group made a stop at the following five sessions:

**Star and Galaxy Gazing (Earth Science):** Several astronomers set up four large telescopes and focused on Jupiter, four of its moons, and the Andromeda galaxy. A PowerPoint presentation on the solar system rounded out this offering.

**Fun with Physics (Physical Science):** Families made oobleck (a non-Newtonian fluid that feels sticky, referenced in Dr. Seuss's Bartholomew and the Oobleck), and demonstrated static electricity with hair-raising results using a Van De Graff Generator.

**What's Life Got to Do with It (Life Science):** Families were able to see how respiration and circulation occur in deer hearts and lungs. A tube connected to the lungs showed how they inflate as the breathing process occurs.

**StarLab (Earth Science):** The Georgia Youth Science and Technology Center brought a StarLab portable planetarium to extend the learning about astronomy, the stars, and the constellations. Families were able to go into the StarLab—dark as the night sky—for astronomical experiences.

**Coffee/Dessert:** Families had time to socialize with each other and enjoy desserts made by several fathers with help from their children.

The ATP enlisted the help of many groups to ensure a successful event. Teachers from each grade brainstormed activities related to their science curriculum. They were really on board with this project and played a key role in getting students and families excited about attending. Community members promoted the activity and participated, including some who did not have students enrolled in the school. Students with good discipline records were invited to be guides for the evening and to demonstrate some of the activities.

"This was a great event. I learned a great deal about science and how to make it more interesting for my child," said one parent. A teacher seconded that. "Our parking lot was full! It was wonderful to have so many parents here and involved in the learning process. It was obvious that these parents were interested in their student's education and science curriculum."

More than 250 students and adults attended. The ATP plans to make one change next year—increasing the number of stations and activities. A science night focused on the stars and other aspects of the science curriculum is bound to become an annual event.

# ENVIRONMENTAL STEWARDSHIP

**Frank W. Cox High School**
**Virginia Beach, Virginia**

Aiming to increase awareness of local ecology and the restoration of the Lynnhaven River and Chesapeake Bay by the school community and general public, Frank W. Cox High School partnered with the Lynnhaven River NOW organization to bring real-world examples of environmental science into the classroom and beyond.

Posters and web resources from Lynnhaven River NOW have enriched classroom instruction in many ways. For example, in the Human Footprint project, students examined their own impact on the environment in everyday activities such as car use; public transportation; home gas, oil, coal and electricity use; food and drink; and recreation activities.

About 125 students from five 9th and 10th grade biology classes used monitoring kits provided by Lynnhaven River NOW to perform water quality tests of local waterways, measuring clarity, pH, dissolved oxygen, turbidity, and temperature. The classes submitted their data to the World Water Monitoring Day website to analyze their results.

To promote understanding of water conservation, 25 students from the Gifted and Talented Program conducted a three-week rain barrel project. Partnering with a community partner, Mike's Rain Barrels, Lynnhaven River NOW held a Saturday workshop for teachers. After the training, students began by painting the six rain barrels on campus that supply water for the school's garden. They learned, among other things, that storm runoff is the number one source of pollutants in waterways and that rain barrels save money and reduce the use of potentially dangerous chemicals.

In another project with Lynnhaven River NOW, the Project WET curriculum provided hands-on activities for students to investigate other environmental issues. For example, students conducted research and developed prototypes of a water purification system using household materials. Color Me a Watershed guided students to analyze the effects of land use variations and the watershed on runoff. This resulted in the development of a 3-D map of the Lynnhaven watershed. Finally, students questioned Whose Problem Is It? and investigated the multiple variables and stakeholders involved with the local watershed.

Another partnership enabled over 275 oceanography students to participate in an oyster restoration program. A marine scientist shared her expertise about oysters and helped students understand what they could do as citizens to become more involved in relief efforts to save the Chesapeake Bay. The program culminated in a trip to deliver oysters to reproduce in designated reef areas.

In recognition of these environmental stewardship initiatives and efforts to promote understanding of the local watershed, Frank W. Cox became the first high school in the district to receive the Lynnhaven River Pearl School Award. Students reaped rewards in their own learning and in their pride in the whole school's accomplishments.

An oceanography teacher remarked, "Raising new oysters and monitoring phytoplankton data gives students a chance to do genuine field research that has real meaning. These activities not only involve students in applied science, but also have real consequences in their community."

As one 9th-grader put it, "I never realized how much there was to be done and just how much a kid like me could do to help."

# S.C.A.R.C.E. EARTH FLAG RECERTIFICATION

**Prairie Elementary School**
**Naperville, Illinois**

Over the past year, Prairie Elementary reviewed and revitalized its environmental conservation efforts, undertaking an initiative to educate the school community about the three Rs: Reduce, Reuse, and Recycle. In the process, the School, Family, and Community Partnerships (SFCP) leadership team spread awareness of environmental stewardship and encouraged students and families to use that knowledge to implement environmentally sound practices in everyday situations.

School & Community Assistance for Recycling & Composting Education (S.C.A.R.C.E.) is a local non-profit organization that provides information to students, teachers, community residents, and businesses about the conservation of natural resources and energy, the prevention of pollution, the reduction of waste, recycling, and the composting of organic materials. Schools that participate in one of the organization's environmental education programs are presented with an Earth Flag. Although Prairie Elementary received its Earth Flag several years ago, the SFCP team approached S.C.A.R.C.E. this year about its Earth Flag recertification program, seeking to reaffirm the school's commitment to these environmental principles.

To kick off the effort, S.C.A.R.C.E. Founder Kay McKeen presented an educational workshop to all Prairie staff and administration on what the Earth Flag recertification program involves and offering general advice on good environmental practices. Then, Prairie students participated in two R-Rally assemblies held by S.C.A.R.C.E. volunteers, which focused on the central theme of Respect for our Environment.

Students learned about natural and renewable resources, conservation, and composting, as how and why to reduce, reuse and recycle. S.C.A.R.C.E. taught the lessons in a fun-filled, interactive game show format and encouraged students to spread the message to their families. Many parents responded positively to their children's suggestions, putting some ideas into practice at home. The school Environmental Club adopted programs presented at the assembly, such as Nike's ReUse a Shoe initiative.

Finally, a group of 5th grade students conducted a Waste Audit after two lunch periods. The contents of the lunchroom garbage cans were piled on several disposable tarps. Liquids were separated and emptied into "slop buckets." Then, student volunteers sorted and divided the solid waste into seven categories: organic (whole and uneaten food), organic (partially eaten food), tree products, minerals and ores, oil-based products, mixed materials, and liquids.

The students weighed each category, and reviewed and analyzed the data using math, science, and communication skills. They brainstormed ideas on ways to reduce the amount of waste produced in the lunchroom. They presented their findings to the school community in a PowerPoint developed with the principal's help. The awareness generated by this project resulted in less garbage at lunch and more widespread use of Litter Free Lunch products—produced by a parent-owned company—at the school.

S.C.A.R.C.E.'s founder rewarded Prairie Elementary's efforts with a new Earth Flag, presented in a ceremony to Prairie students and staff. The benefits of this work go far beyond recertification. One member of the SFCP team reported that, "students felt empowered to make a difference environmentally and to share their knowledge with others."

 

# Science and Technology Expo

*John F. Kennedy School*
*Windsor, Connecticut*

For many science teachers across America, getting students to memorize periodic tables and the different kinds of igneous rocks can be a hard sell. But after last year's Science and Technology Expo, students at John F. Kennedy School are eager to dig in. Since the Expo, they've come to a much stronger understanding of how science connects to their everyday lives.

Kennedy's Action Team for Partnership (ATP) developed the event to support the school's science goal on its action plan. For the first time in recent years, the 2007-08 state achievement test asked students questions about science. Teachers at John F. Kennedy wanted to make sure their students were prepared. They decided to bolster the science curriculum at the school with activities that helped students understand material that could appear on the test. The Science and Technology Expo was the largest event associated with that goal.

Members of the ATP started planning early. They contacted as many parents and local businesses as they could think of that might be willing to donate some science-related services to the Expo. In early September, ATP members sent home a "save the date" note, letting parents know about the January Expo. Over the next few months, a few reminders went home with students along with ideas and notes about science activities that parents and students could do together at home. Ten days before the Expo, school staff had students make morning announcements about the event over the loudspeaker system.

On the evening of January 25th, 125 students and 75 parents came to the school cafeteria to witness the culmination of the ATP's planning and preparation. Fifteen exhibitors manned booths around the room that showcased a wide variety of science professions and industries. The school nurse, a parent who had a local chiropractor business, and a dentist ran a booth about health science professions. The PTO's table explained the scientific process and the benefits of recycling. The high school robotics team brought their prized robots to the event. Kids and Critters, an animal lovers group associated with the high school, ran a small petting zoo where students were allowed to touch and hold various snakes. There were also representatives from the Vintage Radio and Communications Museum of Connecticut and from Dinosaur State Park, a landmark area where visitors can hike around fossilized remains of ancient creatures.

The event cost $125 to produce and promote, from the promotional posters to refreshments served at the Expo. A family resource center associated with the school provided the funding.

Administrators from the district were so impressed by the Expo that they are considering holding a larger version of the event next year and include all four Windsor elementary schools.

# Science – It's All Family Fun!

*Leaphart Elementary School*
*Columbia, South Carolina*

Robots, foam gliders and a Mad Scientist were all part of the fun at Science Spectacular at Leaphart Elementary. Building on the success of an earlier literacy night, the Action Team for Partnerships (ATP) decided to try a science night to make science more interesting and attractive to Leaphart students. The team identified this need because test data suggested that students needed more and different instructional strategies to actively engage in learning science and to improve their achievement in the subject.

So, with an ATP member as the overall coordinator, the school put together a night of demonstrations and presentations showing how science can be fun. To increase interest, it tied the event to the school's science fair, where students displayed their projects and competed for prizes.

"Science Spectacular was a huge hit and just an awesome event. My children raved about the presentations," said one parent.

Staff members, community volunteers and parents made presentations, stressing inquiry and hands-on experiences. In addition, the young students had opportunities to interact with middle school students who were invited to give robotics demonstrations.

Science Night began with a pizza supper, but the meat of the evening was a variety of sessions and stations for adults and students to visit. These included Science through Literature, Animals at the Zoo, Robotics, Biofacts (information about animals and their habitats, plant growth and vegetation at a nearby park on the Saluda River), and "Phun" with Foam, where students built gliders from styrofoam, and learned about aerodynamics. In Engineering Dynamic Duo, students learned about different states of matter through observation and hands-on investigations, while the session How Big Can You Blow a Bubble? explored the effects of air and force on matter.

Second-grade habitat projects and fourth- and fifth-grade science projects were displayed throughout the school. First- second- and third-place ribbons were awarded to the science fair winners at the end of the evening.

In addition, students and their families enjoyed a show at dinner performed by a staff member of "MAD Scientist," an educational organization that operates after-school science camps. The organization volunteered to entertain and students assisted the "mad scientist" in his demonstration of "solids, liquids and gases" involving dry ice.

The science night cost less than $70, as the school received donations of food and funds. The school's PTO paid for what was not donated.

The practice supported the school's improvement goal of encouraging the use of inquiry in problem-solving. It also contributed significantly to shaping students' perception of science as "fun" and encouraged them to see themselves as "scientists." Overall, 150 students and 200 parents were involved, as were 20 teachers and seven community members.

Responses and informal evaluations were positive. "Parents, students, teachers and community members were able to come together and get excited about learning science. It's the type of home-school relationship that is a win-win situation," said the principal.

Next year, the school hopes to offer more and different activities to extend students' excitement about science.

# SCIENCE NIGHT WITH NAUTICUS

**McIntosh Elementary School**
**Newport News, Virginia**

To drum up excitement for science education, the Parent Involvement Team at McIntosh Elementary partnered with a nearby museum to bring added expertise and resources directly to students and their family members. This year, when educators from Nauticus—a nautical and science museum in Norfolk—set up shop in the school's gym for the annual Science Night, the resulting thrills for students were quite literally hair-raising.

The effect of static electricity, however, wasn't the only science topic that Science Night attendees had the opportunity to get their hands on. Nauticus representatives set up a series of five stations, each covering a different area. In addition to the electricity exhibition, Nauticus presented demonstrations on the weather, flowers, the water cycle, and sound—all of which matched the curriculum of the Virginia Standards of Learning (SOL) for science.

Organizers split the two-hour event into six 20-minute time slots. This gave students and parents an opportunity to participate in all five of the Nauticus science stations. The school integrated its Book Fair into the Science Night event and families could spend the remaining 20 minutes browsing through books to take home.

In addition to the presentations and demonstrations, Nauticus provided take-home booklets for parents that showed how to replicate some of the activities at home. These were written in English and Spanish.

The Nauticus "brand" was instrumental in encouraging families to attend. Children at McIntosh were already familiar with a local program that the museum offered once a week on a morning news show. Recognizing students' fondness for Nauticus's *Bill Nye the Science Guy*-inspired program, the school presented the idea for the science night to the museum. The museum leaders were happy to participate.

In advance of the event, teachers collaborated on a list of SOL science topics and provided them to Nauticus. The museum designed the Science Night with these requirements in mind. A particular challenge, says the Parent Involvement Specialist, was to ensure that the educational materials and demonstrations pertained to state science guidelines for *all* grade levels, K–5.

Not only did the Science Night engage students in fun, interactive instruction that reinforced the SOL-tested curriculum, but showed parents what their children were expected to know on these tests. Teachers also benefited by meeting the students' families and observing all of the science-related interactions. Over 150 students and 200 family members came to the event.

Funding for the activity, $500 for Nauticus's fee and miscellaneous materials, came from the school's Title I budget.

Due to Science Night's success, planners expect to invite Nauticus to return in the future. The team also will seek other museum partners to provide a variety of programming.

 

# SILLY PUTTY SCIENCE NIGHT

**Alexander Mitchell Integrated Arts School**
**Milwaukee, Wisconsin**

With science, we explore the world around us. Alexander Mitchell Integrated Arts School wanted to give students and their families an opportunity to extend their understanding of science concepts and have some fun doing so.

Mitchell School holds a Family Night once a month, based on an academic theme. These evenings aim to provide positive educational experiences that families can replicate at home. For its Family Science Night, the ATP and science teachers compiled science experiments that were important, fun, and replicable.

One member of the planning group suggested that Silly Putty could be used to demonstrate the properties of polymers. Students also would learn how to follow directions for science experiments. They discussed and planned Silly Putty Science Night.

Making Silly Putty is anything but silly, and required the planners to distribute and discuss safety warnings and general tips about how to mix chemicals safely. They outlined a three major steps to produce Silly Putty.

First, students and parents went to Silly Putty University to learn what Silly Putty is and how it works. There they watched a PowerPoint presentation on polymers and saw a video showing what they would do next at the Silly Putty Factory. At the end, families participated in a brief and amusing graduation from the University, complete with *Pomp and Circumstance* and diplomas.

Then, they went to the Silly Putty Factory. The Factory was set up in the cafeteria and featured a step-by-step method to make Silly Putty.

At the Factory, students and their families moved through six stations and followed directions to turn glue and starch into bona fide Silly Putty. They also went through a Quality Control Station to ensure that they had followed directions and produced Silly Putty correctly.

Finally, they went to Silly Putty Lab to experiment with Silly Putty to learn its properties and see what it could do. They tested the qualities and functions of Silly Putty and tried other experiments on their own. .

The evening was fun for everyone. The production and testing of Silly Putty showed students and families that science can be an adventure in learning. Teachers saw their students and parents in a new light. Everyone left with new knowledge and self-made Silly Putty.

 

# Start with Success at the Science Museum

***Stanley M. Makowki Early Childhood Center #99***
***Buffalo, New York***

The Buffalo Museum of Science approached Stanley M. Makowski Early Childhood Center to form a partnership. Makowski ECC is located less than four blocks from the museum and children frequently walk there to visit its special exhibits. The Action Team for Partnerships (ATP) welcomed a partner that could support the school's goal to teach science using hands-on approaches. The partnership also provided opportunities for school events, including some that involved students' families. Start with Success benefited from the school-museum partnership.

Two weeks prior to the event, Makowski teachers went to the museum and received training in the hands-on exhibits by the museum's educational department and scientists. Staff members picked themes and exhibits that interested them. Some staff members contacted community agencies to set up informational displays about the services they provide to students and families.

The ATP sent home several notices to parents about the museum's exclusive three-hour evening event for Makowski families. The museum also agreed to provide free one-year memberships for each family and staff member that attended Start with Success.

When the big night arrived, staff members left school at the end of the day and went straight to the museum. The parent organization provided dinner for the school and museum staffs. Then, teachers went to their stations and exhibits. Community agencies set up their displays, and the school administrative staff greeted families at the door.

As families entered the museum, they received a "Passport to the Stars," designed by a Makowski teacher. This listed all of the interactive exhibits the families could visit. After each visit, the passports were punched with a star. Exhibits included: mammals, artifacts, Ancient Egypt, the Solar System, and a dinosaur dig. Families also visited the community agency displays and learned about available resources. Then, families snacked on refreshments and filled out museum membership applications. Within the month, each family received its one-year membership in the mail.

The response to Start with Success at the Buffalo Museum of Science was overwhelmingly positive. Not counting the staff, nearly 900 people attended and over 400 families applied for free memberships. Children and their parents thoroughly enjoyed learning together. Parents had an opportunity to meet their child's teacher in a positive educational setting. Many parents commented that even though they had lived in the surrounding neighborhood for many years, they had never been to the Buffalo Museum of Science and were impressed by all that it had to offer. Other parents said that this was the best thing they had ever attended. Both the school and museum staff were thanked repeatedly. Most important, the museum's generous offer of free memberships allowed students and their families to visit the ever-changing exhibits frequently and continue their learning.

The partnership between Makowski ECC and the Buffalo Museum of Science impacted other school events. For example, the museum hosted Math Outreach and in-house programs such as sending penguin artifacts to the penguin-themed Family Reading Night. Museum staff set up a Paleontology Dig on Math and Science Night at the school. They trained staff in the use of the school's STARLAB and provided follow-up programs about the stars and the solar system. Museum staff worked with individual and groups of teachers to design hands-on programming around particular science topics. Now, each time Makowski children visit the museum, parents are invited. The museum staff also sponsored overnight sleep-ins at the museum and awarded free scholarships to students for museum summer programs.

Thanks to this school-museum partnership, students, parents, and staff are learning science using hands-on approaches.

# Weather Academy and Family Involvement

*Northwoods Elementary School*
*Eau Claire, Wisconsin*

TV, hot dogs and the weather proved to be a winning combination at Northwoods Elementary School. More than 300 people showed up on a May evening when the school and a local television station turned an open house into an event to increase parent involvement in science and to strengthen school, family and community partnerships. The "open house" was part of the TV station's "Weather Academy," a meteorology program offered to area schools.

The academy is primarily a science-based, experiment-driven, one-hour presentation about the weather for Grades 3 to 5. Presented by the three meteorologists from the local TV station, it involves some exciting experiments around the weather, including air pressure, effects of warm and cold fronts, tornado development and lightning

After the daytime presentation, the presenters came back in the afternoon with TV trucks to broadcast the nightly weather news from the school. This portion of the program is called "open house" and students, parents and teachers were invited.

Northwoods decided that the open house should be not only a weather show for the station, but also a time to have parents and children come for a hot dog supper. "This is when things got interesting and evolved into a real partnership with the community and families," said the school's parent coordinator.

The event was held in the school cafeteria and gym. The mascot from a local Northwoods League baseball team visited and gave away team souvenirs. The partnership coordinator worked with 10 teachers, 2 custodians, 18 parents and a media specialist to make it happen. Teachers rearranged schedules, encouraged children to make weather-themed table decorations and set up computers, TVs and sound systems.

The parents took charge of organizing the supper. One parent bought all the paper products, while other parents were in charge of setting up, cooking, serving and cleaning up. Because many of the parents were new to Northwoods, the partnership coordinator took time to introduce the parent volunteers to each other. This planted seeds for future collaboration, community-building, and leadership at Northwoods.

"This practice is a great example of turning a ready-made community program into an opportunity for school-family-community partnerships," said the coordinator. Although many parents volunteer at Northwoods, school personnel felt that it was getting more difficult for parents to attend meetings and activities at the school. Their goal was to build on community partnerships in such a way that parents would consider the school as a resource and desirable place to be. "The local TV station's "Weather Academy" program was just what Northwoods needed to reach out to its families and to celebrate students' science learning," she concluded.

The school advises others to find out about existing programs in the community in science, the arts, music, civics, and health that can be brought to the school. Then, build on the program by inviting parents and children to enjoy it together. Although a different school will host the "Weather Academy" next year, Northwood is planning a Spring Barbecue, and hopes to find another community program to tie into it that will make the event fun and educational.