

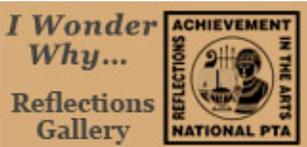
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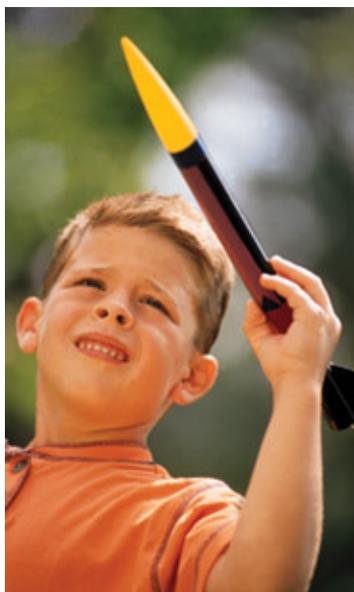
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## Experiment with Science in Your PTA

By Jenny Kopach, Patti Reher, and Mavis Barkley



When the students at Sawyer Woods Elementary hear the blades of a helicopter going whoosh, whoosh, whoosh, it can mean only one thing: the science fair is coming! On this chilly March morning in the Pacific Northwest, children in grades K-6 rush out to the playground to watch a load of student-engineered egg-drop cartons tumble 400 feet from the helicopter onto a giant black plastic frying pan. Students cheer when their contraptions protect their eggs from becoming scrambled.

Like so many science fairs around the nation, the event at Sawyer Woods in Black Diamond, Washington, provides a great opportunity for teachers, community members, and the PTA

to offer students science lessons without a textbook. Scott Sandwith, a dad who has run the Sawyer Woods Science Fair for the last eight years, says that the school's PTA is vital to the program. "In addition to providing upwards of 35 volunteers, the PTA contributes funding for awards, promotion, and supplies," says Sandwith, who works as a mechanical engineer.

Along with the egg drop, the Sawyer Woods Science Fair includes a judged competition for which all 5th- and 6th-grade students must do an experiment (their experiments are part of their grades for science). Fourth-grade students are encouraged to do an experiment. Last year, students in grades 4-6 submitted more than 230 projects.

### The American science fair revolution

Our nation's science fair obsession began in the early 1950s after the launch of the space program. Schools all across America began hosting competitions, hoping that one of their students might become the next Neil Armstrong.

Lately, science instruction and curriculum has been gaining more attention from teachers, administrators, and even the president of the United States. From Capitol Hill to California, a national agenda has been set: our nation must get more students to enter science and technology careers.

For many years, PTAs have been furthering that very goal through a wide variety of science programs. Given the benefits of getting students more engaged in science, you may consider whether your PTA needs a science committee.

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Parents with professional backgrounds in the sciences are an underutilized resource in most PTAs. If the owner of the local art supply store makes a great committee chair for the art program, why not solicit an astronomer or physicist (or someone who just loves science) to head up a science committee?

A motivated parent who just happens to be a molecular biologist can be a tremendous asset to a PTA science program. Working parents who might not be able to volunteer during the school day can help organize an evening science event, judge projects, write materials, and perform other duties that require skills honed in their scientific careers.

#### Rewarding creativity

In some schools, judged science fairs are seen as placing restrictions on creativity.

Organizers of the Math, Science & Technology Expo in Poughkeepsie, New York, have found that the experience of coming up with an exhibit is often its own reward. This noncompetitive exposition,

sponsored by the local PTSA council, is open to all K-12 students in the Arlington Central School District and garners more than 350 projects annually. The Arlington Council PTSA distributes information about the expo to all of the involved schools throughout the year. Each local PTA or PTSA supplies a liaison who distributes information to students, and each principal nominates a teacher to promote the event among the faculty. This gets everyone in all 13 district schools on board and working toward the same goal.

Co-organizers Alice Kuch and Irene and Rich Keyes agree that the atmosphere of the expo is more relaxed than at a judged science fair. "We love the smiles and the energy in the room," says Irene Keyes, a retired math, technology, and computer science educator. Students describe their projects to adult volunteers instead of judges. "As the 'adult listeners' walk the project hall and hear the kids talk about their projects, they can sense the excitement," says Irene Keyes. "The high school students love to share their work with younger children, and the little ones look up to the older kids who tackle more difficult subject matter." With exhibits on topics such as the physics behind an electric guitar, math fractals, and a hovercraft built from leaf-blower engines, the expo's "wow factor" is high.



At the Edison Science Olympiad in Elmhurst, IL, a team of boys works to construct a bridge from uncooked pasta to hold a plate of real meatballs.



Kindergartners and first-graders participate in the Color Splash event at the Edison Science Olympiad.

#### Local experts light up the Edison Science Olympiad

Another type of science event has been organized for the past six years by a team of PTA parents at Edison Elementary School in Elmhurst, Illinois. What began at one school has spread via local PTAs and the PTA council to seven other schools in the area. In Edison's hands-on,

noncompetitive program, teams of four students (plus a parent guide) cycle through a series of events with wild names such as Tropical Eco-Challenge, As the Worm Turns, Marble Roller Coaster, and Science Crime Busters. Adult volunteers prepare all the materials for the Edison Science Olympiad. The day of the event, students engage in problem solving, building structures, and testing their scientific knowledge.

One special aspect of the Edison Science Olympiad is the participation of local science experts, who donate their time to inspire students to see the link between science exploration and careers.

Gemologists, chemists, zoologists, doctors, nurses, veterinarians, computer engineers, and airline pilots have brought science to life for these K-5 students, many of whom might be intimidated by science in another setting. This program has not only caught the attention of district administrators, who now recommend Science Olympiad as a model extracurricular activity, but also captured the hearts of parents, who give their time and energy to something that can truly have an impact on their children's academic careers.

#### Now it's your turn

Drawing on these examples for inspiration, look into starting a PTA science program in your own school. All that's needed is a good committee, a few late nights, and a whole lot of love for science. Helicopters are optional.

*Jenny Kopach, Patti Reher, and Mavis Barkley are PTA members in Elmhurst, Illinois, and ran the Edison Science Olympiad (ESO) together from 2001 to 2005. The team presented a workshop on elementary science programs at the 2005 National Science Teachers Association Regional Convention in Chicago. Last fall, ESO won the \$10,000 grand prize in Midwest Living magazine's contest recognizing outstanding K-12 volunteer activities. For more information about ESO, visit [www.edison205.org](http://www.edison205.org).*

#### Planning a PTA-Sponsored Science Event

##### by Jenny Kopach, Patti Reher, and Mavis Barkley

**September:** During the new business portion of your PTA meeting, bring up the idea of forming a science committee. Recruit at least two or three volunteers to join your quest.

**October:** Decide which type of science activity will best fit your school—a judged science fair, a districtwide exposition, or a hands-on, noncompetitive fun night. Set a budget and start planning.

**November:** Ask a larger group of PTA and community members to assist with your program. Publicize your event via the school or PTA website, district newsletters, and fliers sent home with students, as well as during other PTA events (get a table and put out some brochures!).

**January:** Time to get cracking. Finalize facility needs, check with the school administration on details, and send registration information to students.

**February:** Ask the local newspapers and TV stations to cover your PTA science event. Tell them that your school is helping build a nation of young scientists.

**March/April:** Hold your PTA science event and have fun! Share the experience by inviting district administrators and representatives from other schools.

It's the Process, Not the Results, that Matters Most

by Shumit DasGupta

One of the main goals of any science project is to teach kids about scientific method. In scientific method, it's the technique, rather than the question or the results, that matters most. The most common misconception about science projects is that they must be technical, complicated, and generally un-fun to be high quality. This, however, is not the case. Here is one example of a fun science project that older kids can carry out independently and younger kids can participate in with adults.

**The question:** The enzymes in raw pineapple have an amazing ability to break the chemical bonds that hold Jell-O together. If you put a piece of fresh pineapple on Jell-O, you will see that just underneath the contact point, the Jell-O starts to liquidize. The pineapple has to be raw, though. Heat kills enzymes, and the heat used for canning pineapple does just that. The question is, at what temperature are the enzymes destroyed?

**The method:** Heat chunks of raw pineapple in a pot of water on the stove. Using a candy thermometer to monitor the temperature of the water, take out chunks of pineapple as the water temperature hits certain increments (each 5 or 10 degree rise should suffice). Record which piece of pineapple was taken from the water at which temperature. After each piece of pineapple has cooled, place it on the surface of the Jell-O. Do the enzymes still retain the ability to break down the bonds that hold the Jell-O together? After you have gathered your data, be sure to enjoy some dessert.

*Shumit DasGupta teaches high school science for Chicago Public Schools.*

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