

# Science: It's Elementary

Transforming the Teaching and Learning  
of Science In Pennsylvania



*“Every dollar invested in today’s children is a down-payment on a brighter future for the commonwealth.”*

— Governor Edward G. Rendell

## Investing in What Works...

Analyses of Year One Science: It’s Elementary (*SIE*) Student Achievement by an external evaluator provide evidence that the *SIE* program is having a positive effect on student learning in science.\*

- On 4 of the 6 module assessments, students receiving instruction using the *SIE*-provided module from teachers who participated in *SIE* professional development scored significantly higher (**ranging from 16-44% higher**) than students not receiving instruction with that module.\*
- Teachers’ ratings of their understanding of the science content needed to teach their module rose dramatically (from **20% prior to 73%** after participating in *SIE* professional development.)\*

*\*Information cited from SIE Student Achievement Study Summary of Results and Year One Report, Horizon Research, Inc., July 2007. A full report is available by contacting ASSET.*

## Expanding the Impact of Hands-on, Inquiry-Based Science to More Schools, Teachers and Students Across Pennsylvania

*Science: It’s Elementary (SIE)* proudly kicked off its third year, expanding its reach to help bring science to life for thousands more students across the state in the 2008-09 school year. To date, Governor Edward G. Rendell and the Pennsylvania Legislature have invested \$38 million in this landmark initiative, bringing *SIE* to 141 schools in 132 school districts and touching approximately 2,700 teachers and nearly 72,000 students across 52 Pennsylvania counties.

ASSET Inc. was selected in 2006 to design and coordinate *SIE* in partnership with the Pennsylvania Department of Education (PDE). This statewide initiative to improve elementary science education provides hands-on science materials supported by rigorous teacher professional development, with the goal of helping teachers and school districts implement inquiry-based science education programs. *SIE* expands upon ASSET’s proven model of hands-on science materials and intensive teacher training to help Pennsylvania’s students meet the state standards in science.

School districts are selected to participate by the PDE through an e-grant process, with priority given to schools that serve a significant number of students scoring below proficiency in reading and math.

Participating *SIE* schools receive the following services at no cost to the district:

- the opportunity to develop a three-year strategic plan for implementation of *SIE* in their schools;
- rigorous teacher professional development from highly trained and skilled ASSET Resource Teachers; and
- delivery of research-based, hands-on instructional materials for students to engage in a nine-week science curriculum unit aligned with state science standards.

*“The professional development I received through SIE has made it possible for me to grow and change as a teacher, perhaps the greatest impact has been my personal growth as a teacher. I have witnessed the change in student interest and the eagerness to learn because of the new direction I have taken in my teaching.”*

Cindy Molinick  
4th Grade Teacher  
Blacklick Valley School District

### Teacher Professional Development

Every new implementing K-6 teacher participates in a two-three day professional development session to learn how to use a module in the classroom as well as science concepts embedded in the hands-on materials. Teachers learn teaching strategies such as inquiry, questioning for higher level learning, how to use science notebooks and how to integrate literacy and science.

Teachers participating in their second year of *SIE* will engage in a one-two day professional development session on their second module.

Teachers participating in their third year of *SIE* will engage in two days of module enrichment on their first module.

### Delivery of Classroom Science Materials

Teachers receive science modules with enough materials for a class of 30 students to engage in nine weeks of hands-on, inquiry-based science exploration and experiments. Second year teachers will receive the module they taught last year and a new module. Third year teachers receive both their first and second modules. All modules are delivered to the schools and are on loan from ASSET.

Teachers also receive 30 science notebooks, an effective tool that allows students to document their thinking and scientific process as well as reflect on their learning.

*"It's a wonderful program. I watched everything. I'm glad that we could come and witness it first hand. When school districts talk about programs like this, you have to see it first hand so you can understand what they're doing and what it means to the kids*

Sean Logan  
Senator, 45th District  
Commonwealth of Pennsylvania

### **Pennsylvania Strategic Planning Institute**

This initial event helps prepare and educate leaders to implement research-based science for all students within their district. The institute follows the model of science reform used by the National Science Resources Center. Each district creates a strategic plan to implement into their district as part of the *SIE* program.

### **Pennsylvania Vision Conference**

Vision starts at the top and administrative/community involvement is a key component of implementing a standards-based science education program. School district and community leaders, such as curriculum coordinators, principals, lead teachers, board members or higher education partners, will participate in a one-day Vision Conference to create a long-term vision for science education for their school district.

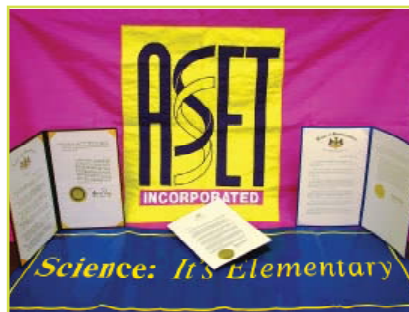
### **Showcases of Student Learning**

Thousands of elementary students in classrooms throughout more than 60 school districts across the Commonwealth are showcasing the hands-on science learning as part of the statewide *SIE* initiative. During the *SIE Showcases of Student Learning*, students facilitate and actively engage parents, legislators and community members through science investigations sparked by hands-on, inquiry-based teaching and learning.

Governor Rendell, along with both the Pennsylvania Senate and House of Rep-resentatives issued resolutions recognizing the month of May as *SIE Showcase of Student Learning Month*. Resolutions from Governor Rendell, Pennsylvania Senate and Pennsylvania House of Representatives can be seen below.

### **SIE/ASSET Leadership Conference**

Developing leadership within schools is the next step toward firmly establishing exemplary elementary science education programs. This five-day conference helps build a cadre of lead teachers who can mentor and coach their peers as they learn to conduct ASSET module training for new participating teachers in future years.



*"The Science Showcase validated what students are learning in science. The students were very excited to show off their acquired science knowledge to their parents, friends and family members. The Showcase brought together our families and community for an educational event."*

Jean McCleary  
Elementary Principal  
Union School District

## ***SIE* Year Two Highlights**

### **Student Achievement Continues to Improve**

- On 5 of the 6 module assessments, students receiving instruction using the *SIE*-provided module from teachers who participated in *SIE* professional development scored significantly higher (**ranging from 7-47% higher**) than students not receiving instruction with that module.\*\*
- Post-test scores are significantly higher the second time teachers use the module. Depending on the module, students in Year Two gained about 1 to 4 points more from pre- to post-test scores than students in Year One.\*\*

### **Module Enrichment Improves Teachers Content Knowledge**

- Module Enrichment professional development sessions are designed to help teachers better understand science content and become more effective in implementing the module.\*\*
- On assessments administered at the beginning and end of two-day module enrichment sessions, teacher post-test scores were significantly higher on three of four modules.\*\*

*\*\*Information cited from SIE Student Achievement Study Summary of Results and Year Two Report, Horizon Research, Inc., May 2008. A full report is available by contacting ASSET.*

### **Achieving Student Success through Excellence in Teaching**

For more information, contact ASSET Inc.  
*SIE* Program Director, Cynthia Pulkowski  
eMail: [cpulkowski@assetinc.org](mailto:cpulkowski@assetinc.org)  
Phone: 412-481-7320  
[www.assetinc.org](http://www.assetinc.org)