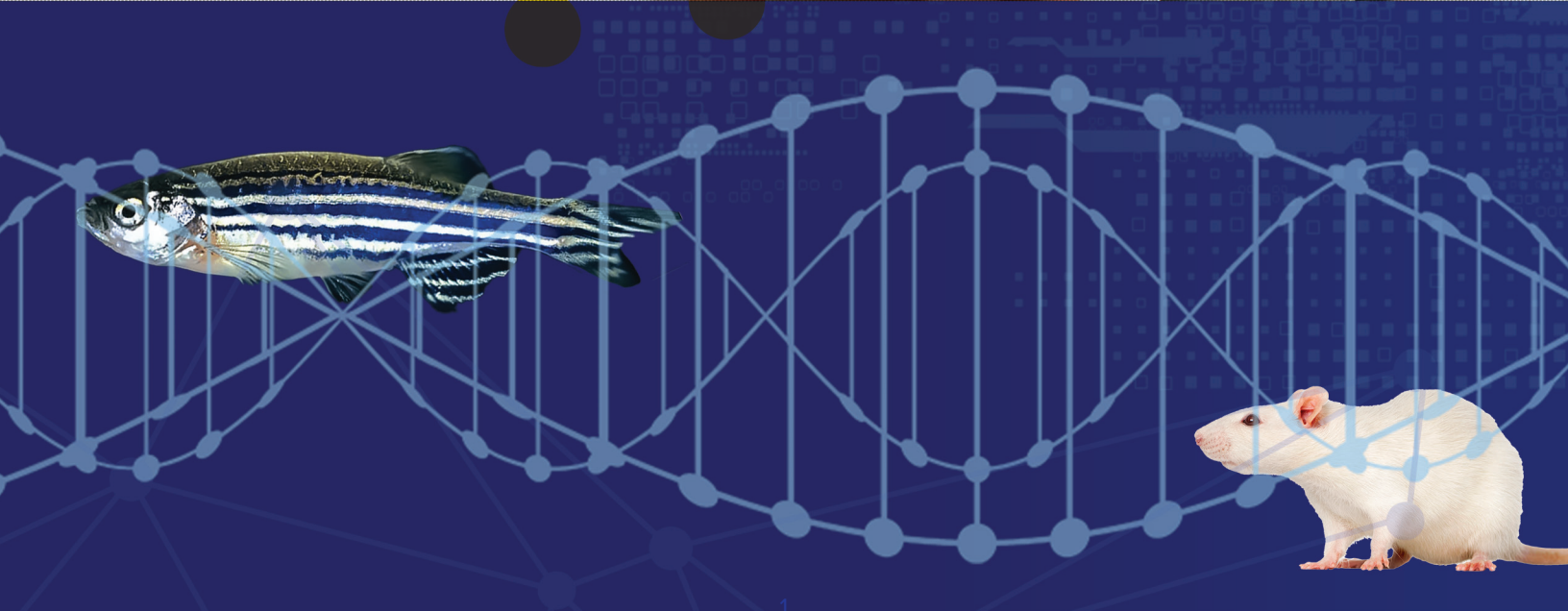




Driving STEM Forward



A program of: **psbr** Pennsylvania Society  
Biomedical Research





**“There is a world-class scientist in your class.  
She just does not know it yet.”**



## **SPARC Mobile Science Programs Driving STEM Forward**

**Because the scientific advancements of tomorrow depend on your students' passion today.**

Engage your learners, broaden their perspectives, and enhance your curriculum with a visit from the Science Program and Research Coach (SPARC) Mobile Science Program.

SPARC is dynamic, career-connected STEM education for all learning levels powered by PSBR, the Pennsylvania Society for Biomedical Research.

### **8 Reasons Schools Love SPARC Mobile Science**

1. Unique, fully interactive, and hands-on.
2. All equipment, materials, tools, and supplies provided.
3. Aligned to state curriculum and testing standards.
4. Content tailored to your grade level, class time, and selected topic.
5. Flexible scheduling customized to your teaching load.
6. Affordable sliding scale fee and opportunities for fully grant funded programs.
7. Includes pre- and post-visit videos, activities, reflective assignments, recorded interviews with biomedical professionals, and ongoing opportunities to explore scientific careers and educational pathways.
8. Proven approach boosts students' grasp of scientific concepts and professional opportunities.



*Students explore microscopic organisms and learn how they are used in biomedical research.*



*Authentic molecular biology equipment and supplies are utilized to give students a real-world experience.*



*Students are encouraged to use their cell phones to document and share what they are learning in class.*



*Student exploration and hands-on learning are at the heart of the SPARC experience.*



*PSBR's Mystery Boxes allow students to explore how and why scientists work with animals to create medical advancements.*





**SPARC** educates and inspires students to think about biomedical science and STEM-related careers in ways they never have before. Introduce your students to hands-on science activities using real-world equipment and open their eyes to rewarding careers in exciting scientific fields.

### Our Featured Mobile Science Programs

#### Flies on Ice

Students utilize live organisms, *Drosophila melanogaster* (fruit flies), to learn the scientific method and explore basic concepts of neuroscience.

#### Mystery of the Crooked Cell

Classes explore genetic diseases and trace genetics through the use of Punnett squares and gel electrophoresis.

#### DrosoPHILA

Students leverage advanced online scientific search tools and databases combined with modern molecular biology equipment to explore evolutionary conservation at the genomic and protein levels.

#### Micropipette Challenge

Students learn how to operate a micropipette and measure small quantities of liquids to create a visible spectrum while learning how to carefully read and follow a scientific protocol.

#### Sense, Think, Move: Exploring Brain Function

In this neuroscience primer, the class engages in an inquiry-based investigation that explores the key role our brains play as the control center of the human body.

“Tell me and I forget.  
Show me and I remember.  
Involve me and I learn.”  
-Benjamin Franklin



Contact Dr. David Garbe  
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Call 267.225.6795

### Biotechnology and Genome Modifications

This lesson delves into concepts surrounding modern biomedical research, including genomic editing and modifications as well as the ethics surrounding these techniques.

### The Great Grow-Along

Students learn to conduct a scientific experiment, work with live animals, and make connections to human nutrition and health.

### BioEYES Partnership

This week-long scientific investigation uses zebrafish to study biological concepts in collaboration with the Institute of Regenerative Medicine at the University of Pennsylvania.

Many additional opportunities are available and new **SPARC** programs are currently in development. Contact [david@psbr.org](mailto:david@psbr.org) to learn about all of our offerings.

### Why bring **SPARC** to your school?

#### It's easy

We know teachers are busy. **SPARC** lessons are built to complement and enhance your curriculum, not create more work. From single-day opportunities taking under an hour, to multi-day engagements or periodic return visits, presentations are customized based on your goals for content, pace, and timing. Once your **SPARC** visit is scheduled, we deliver everything you need for a simple, turnkey experience.

#### It combines substance AND fun

**SPARC** presentations are created with input from current classroom teachers and regional Intermediate Units to drive home key concepts and capture kids' attention in the way that only hands-on experiences can. David Garbe, PhD (aka Dr. Dave), brings authentic passion and personality to **SPARC** encounters, sharing his background as a molecular biologist and pharmaceutical researcher. Students are captured by Dr. Dave's fun and interactive approach and his down-to-earth relatability as he shares what his science career has taught him about overcoming hurdles, defining success, and learning to adapt.

#### It's relevant

**SPARC** showcases science that's current, rigorous, and career-connected. We help students identify and build contemporary skills to plan for success in 21st century science professions.





### It's impactful

Bringing **SPARC** to your classroom delivers a high-quality educational experience to your students in a memorable, engaging way. But it also does much more. **SPARC** builds kids' confidence by entrusting them with live organisms, real-world scientific tools, and permission to try new skills. It prompts young people to probe career paths they never considered. It generates thoughtful discussion and critical thinking about topics like the role of animals in biomedical research.

Since 2012, more than 40,000 students have been engaged by programs provided by the Pennsylvania Society for Biomedical Research (PSBR), **SPARC's** parent organization. Post-visit surveys of students and teachers reveal a 70% increase in understanding of biomedical science concepts. 74% of students report increased interest in STEM education and careers, and 95% of students report being "very satisfied" with the **SPARC** presentation.

### What SPARC Participants Are Saying

#### Meaghan / St. Isadore

"I loved watching the fish grow. It was a really fun experience. It was cool when we came in one day and there were larvae swimming around. I loved watching them through the microscope."

#### Luise / Paradise Elementary

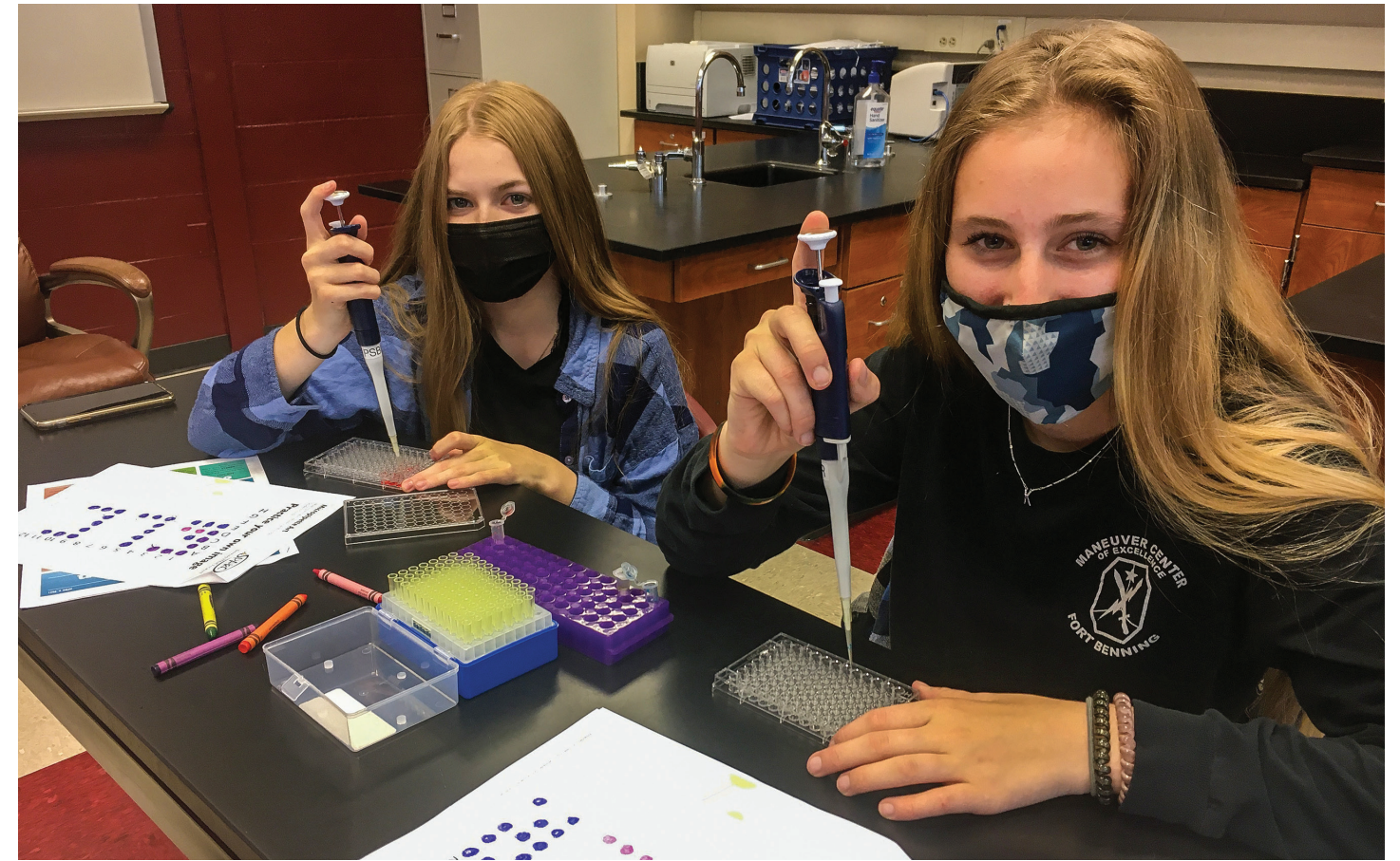
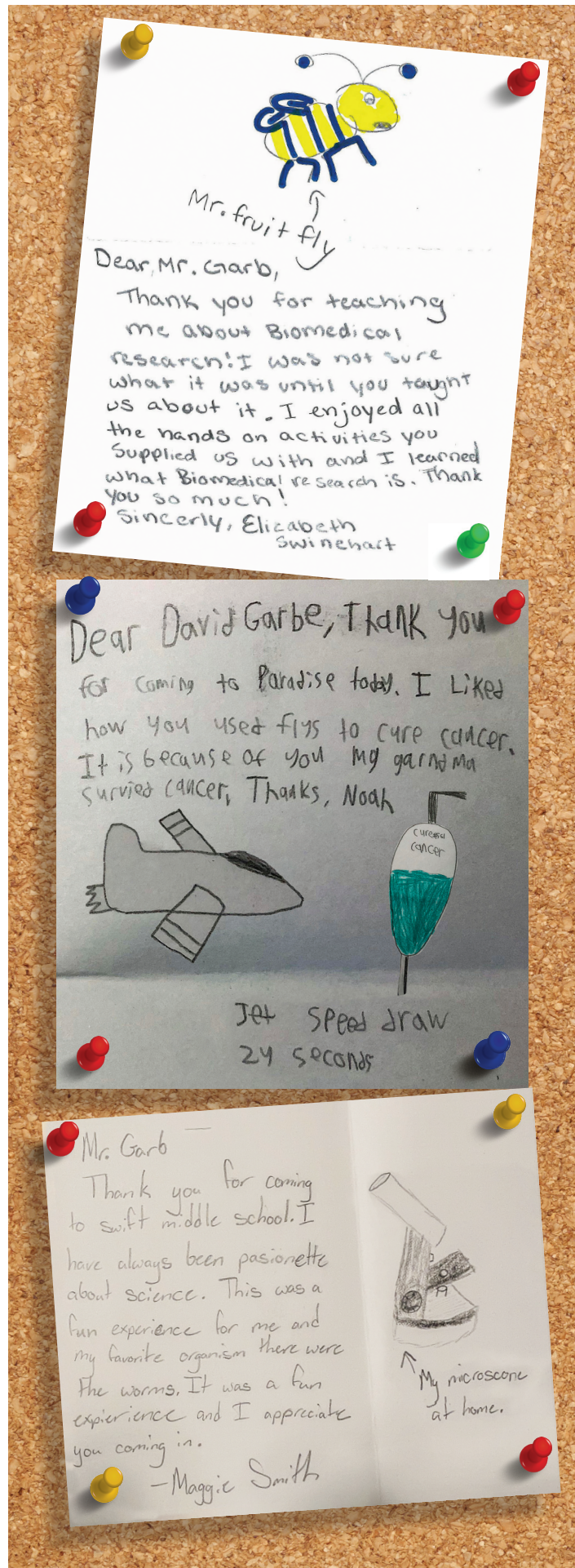
"I had no idea how animals could have so much to do with biomedical research. Because of this experiment, I love science even more and might want a career in it."

#### Sherry / Sandy River Middle School

"PSBR has provided my students will the opportunity to learn about biomedical research. In our small community, we have limited access to companies, individuals, or organizations that promote health care, medical research, or STEM careers. The presentation, that was given to my students, opened a whole new avenue for discussion surrounding professional opportunities. Several of my students have expressed interest in possibly pursuing a biomedical career."

#### Deborah / Fox Chase Elementary

"My students learned so much and continue to talk and write about the lessons in their daily journals. We hope to continue this partnership."







Bring **SPARC** to your science students and watch their aspirations ignite. Ready to learn more? Contact [david@psbr.org](mailto:david@psbr.org)