

SPRING 2014

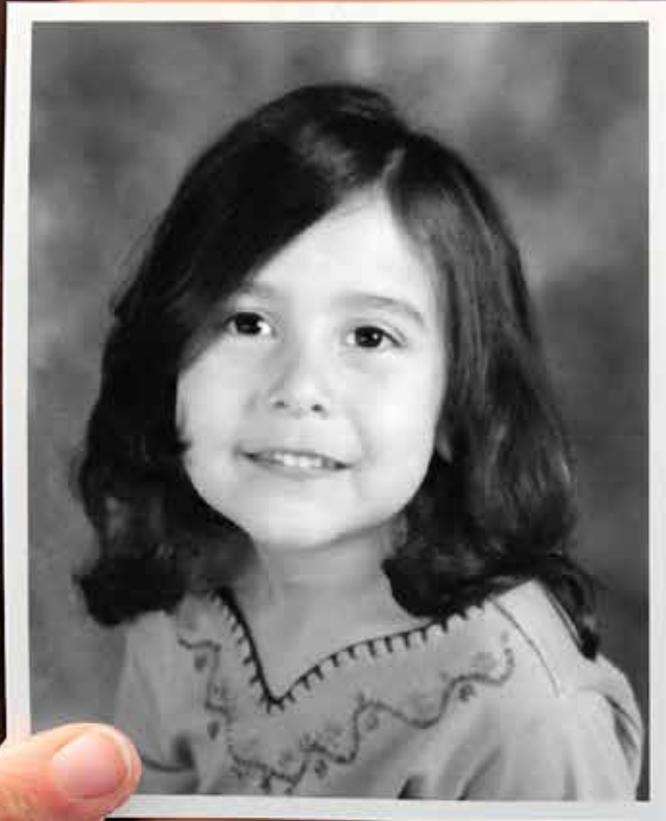
# *The* Westonian *Magazine*

**IN THIS ISSUE**

**WHY NOW?**  
Redesigning  
*The Westonian*

**MORE THAN  
A BUILDING**  
Our New  
Science Center

**FROM POCKETS  
TO PROJECTS**  
A Life at Westtown >>



M O R E T H A N A

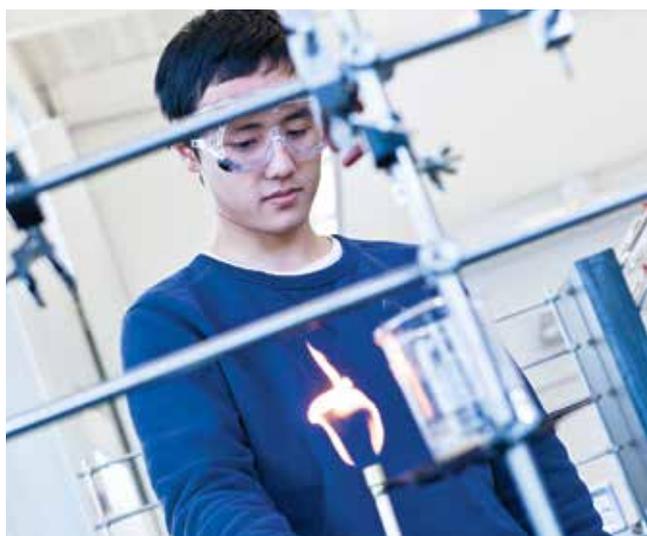
# Building



## T H E N E W S C I E N C E C E N T E R

When approached in a certain light, Westtown's new science building looks like it's topped with a pair of wings. The architects, in fact, call it a "butterfly roof" because the two gables angle upwards and slope towards the middle, which gives the viewer the sense that the building just might take flight.

Whether or not the building ever leaves the ground, the programs it houses are certainly poised for lift off. The truth is that the building is more than a building. It's a statement about Westtown's confidence, commitment and aspirations. It declares that Westtown believes, perhaps more than ever, that today's students need a rigorous, adventurous, innovative education in the sciences. The world's problems are manifold, and the solutions will require scientifically-literate leaders and doers who not only know how the world works but are both empowered and prepared to do something about it.



STORY BY TERRY DUBOW • PHOTOS BY ED CUNICELLI

### BUILDING ON A LEGACY

This all happened quite fast. While it's been clear for years that Westtown needed more space to teach science, the time between ground breaking to opening the doors to the expansion of the existing building is measured in months. Nine of them to be exact. Board Member David Jones '72 led the project along with George Schaab, Westtown's facilities manager. Many more worked on the plan and its execution. In the end, the project added six classrooms and 16,000 square feet, refurbished three other rooms and labs as well as the lecture hall, and created a design and engineering lab.

It's a teaching building as well, built as a model of sustainability principles. "Its design and operation are an expression of our care for the natural world and commitment to environmental leadership," wrote Head of School John Baird in January. "It is heated and cooled by geothermal wells; it has a 'butterfly roof' and cistern to collect and recycle rain water, and maximizes natural light through windows, which afford stunning vistas of the Main Building and the South Woods. Some of the wood in the building is sustainably harvested, the linoleum comes from vegetable matter, and a dashboard has been installed that will enable us to track the building's energy use."

Just as importantly, the building honors the fact that Westtown has always held scientific inquiry as one of its primary callings. In the early days, “depending on who the teachers were in the time they attended, kids could study botany, geology/mineralogy, ornithology, herpetology, astronomy and geography, heard lectures in chemistry, watched astronomical phenomena,” says Kevin Gallagher, Westtown Archivist. “All of these studies were considered ‘useful knowledge,’ which was both an Enlightenment approach to natural science and a Quaker approach. Useful knowledge and spiritual exploration, both inward and outward growth, were the two key principles for which Westtown was founded.”

Those founding principles flourish at today’s Westtown. In the last years, students have flocked to science, engineering, robotics and sustainability in increasing numbers. Some key indicators:

- 23 percent of Westtown graduates major in science, technology, engineering, or math (STEM); nationally the average is 16 percent.
- Enrollment in Upper School science courses has increased 33 percent in the last 14 years.

- The number of Upper School science course offerings has doubled in the last 14 years.

“The building affirms that we’re doing the right thing and tells us to keep going,” says Dawn Lovejoy, Chair of the Upper School Science Department. “One of the great things that the Board did when they funded this project was not to invest just in the building but also in fantastic equipment. The Board deserves a lot of credit for their vision.”

### NOW FOR THE FUN PART

Over winter break, a team of science teachers, facilities crew members and volunteers unpacked boxes, assembled chairs, desks, microscopes, and trained to use the new 3-D printers. When break ended in January, students and faculty celebrated the opening. The Upper School jazz band played in the lobby while the Lower, Middle and Upper School students took turns touring. It was a great day.

The real fun, though, has taken place in the days that have followed. The science departments in all three divisions are energized to take an excellent science program to the next level. They’re building on a sturdy foundation that prioritizes passion and curiosity. “We teach students how to think rather than what to think,” says Celeste Payne, Upper School science teacher.

The Upper School has been in the vanguard of science education for many years. They adopted a Physics First

curriculum long ago because it’s developmentally appropriate even if it’s still uncommon in high schools. They also let go of the Advanced Placement tests long before it was in vogue in favor of courses that promote in-depth learning and experimentation.

“We have the flexibility to reimagine and expand because we’re not teaching to these tests,” says Lovejoy. That approach allows teachers to offer what science teacher Steve Compton calls a “crafted education,” one that allows teachers to focus on enthusiastically creating experiences for students to explore, test and grapple. The end result: confident, curious and scientifically-literate students.

Make no mistake; Westtown’s science classes are certainly content rich. But where other schools place standardized content mastery as the goal of their courses, Westtown places action and depth of understanding at the heart of theirs. “We prepare students because we cover a lot of related topics,” says Rose Koenig, Upper School Chemistry teacher, “but I’m able to delve deeper into more topics that I think are essential and that students find interesting.”

The next steps for the Upper School Science Department revolve around a planned curricular review next year and building on the momentum the new building has generated. The department has already begun to develop and implement exciting programs in design and engineering. Outfitted with state-of-the-art equipment, the new design and



### FAST FACTS // SCIENCE CENTER

A building design that presents a **future** in which conferences, professional teacher training, evening “science salons” and symposia can be hosted

A **nano spectrophotometer**, which measures DNA, RNA and protein analysis



A **Design and Engineering Lab** dedicated to training students in design thinking, 21st century technologies, and in the creative mastery of robotics

A similar dedicated **lab for life science** for long term research as well as individual and group experiments



A **LEED silver minimum certification** including geo-thermal heating/cooling; rainwater harvesting; renewable construction materials, and solar hot water



One lab’s lights wired with **DC electricity** as a model for alternative energy sources —donated by **Ben Hartman ’79** and **Paul Savage ’79**, who have a company called Nextek, which installs DC systems



## “We teach students **how to think** rather than what to think.”

engineering lab will immerse students in an active and creative environment that will encourage them to solve problems through engineering and design.

To help accelerate these efforts, Steve Compton, Director of the Westtown Science Institute, will launch its inaugural summer program this June. The WSI will offer classes for grades 3-12, all of which will take place in the new building. The WSI will offer “an immersive experience wherein students dive deep into phenomena and systems, and are excited by what their work reveals,” notes Compton. The classes will emphasize “learning in which curiosity leads to fascination, fascination to inspiration, inspiration to investigation, investigation to creativity, innovative thinking and building.”

Compton is certainly energized to make the WSI a signature program, and people are paying attention. Earlier this winter, he was selected from a global cohort of educators by Stanford University as one of ten “Stanford FabLearn Fellows” for 2014.

### SCIENTISTS EVERYWHERE

The new building also houses the Middle School science program, which shares the departmental philosophy of active engagement with science. “These are not

worksheet-based classes,” says Josh Reilly, who teaches the 7th and 8th grade science classes. “Science is action based. The classes are student-directed, immersive and collaborative.”

Reilly often splits his students into teams and then presents them with scenarios that require them to apply what they’ve learned and justify their results. For instance, he gave his 8th grade chemistry students a hazardous material scenario in which they had to test known and unknown materials and then determine the composition and potential danger of the materials. (No worries; everything turned out to be safe...)

“My biggest mission is to generate excitement and maintain curiosity,” he says, which is why rather than presenting and lecturing, he often has his students experience the science and then work backwards to explore why the world works as it does.

Lower School offers a similar experience for students. “Our program emphasizes hands-on, collaborative science projects,” reports Sue McLaughlin, Lower School Science Teacher. In her room, a series of large, hand-drawn paper whales hang from ceiling, the result of 4th grade’s interdisciplinary ocean study project. The class traveled to Cape Henlopen in Delaware to study the



watershed where the Delaware River meets the Atlantic.

“We study it because it’s part of their real world,” McLaughlin says. “Science is alive around you. It’s something that children do. It’s not something that’s done to them. I see my role as one of guidance in their discoveries.”

Next year, Lower School students will have even more to work with when it opens its own “Design Lab” that will give students the tools they need to design and engineer solutions to the problems their teachers present to them. The goal in the Lower School is the same profound one that the Upper and Middle Schools share: to harness each student’s curiosity and sense of wonder and to use scientific inquiry like a pair of wings to help them take flight. **W**



**9** classrooms, each with complete **state-of-the-art** equipment and instrumentation, providing tools and methods for investigation that are second to none



Total cost: **\$13,000,000**  
Amount raised thanks to our generous and visionary donors **\$11,200,000**



Very cool digital and **fluorescence** microscopes

A drawer filled with preserved birds, many are more than **100** years old



The **Westtown Science Institute**, an organizing force for summer programming, school year and weekend special events, TedX talks, a seminar series, Maker Faires, and community outreach.



A **science faculty**, two-thirds comprised by women