INSIDE Hillside

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*Fall 2017*

# Hillside program to serve as model

## *Girls Rock Science will be foundation of NJIT program to encourage girls in STEAM*

HURDEN Looker Elementary School's Girls Rock Science program will be the foundation of a new initiative from New Jersey Institute of Technology to inspire young girls to take an active interest in the sciences.

> ***"Girls start losing interest in science and math at 9 or 10 years old. So the idea is to get them on the path when they're young and keep them there."***
>
> **Bruce Bukiet**
> *NJIT Assoc. Professor*

With funding from the National Science Foundation, NJIT will work with Hillside educators and those from partner districts Morris Plains and Weehawken to develop LiFE, Leadership and iSTEAM for Females in Elementary School. The program will develop hands-on science skills, inspire girls to take on leadership roles in and out of the classroom, and encourage them to start considering careers in science, technology, engineering, art, and math.

At an intensive workshop planned for this summer, Girls Rock Science, which is taught to third- and fourth-graders, will be enriched with projects and ideas from the partner districts and expanded to grades 5 and 6 to form LiFE. The LiFE curriculum will also include ideas culled from technology presentations from Apple, leadership training from the U.S. Army, and discussions with female NJIT faculty members.

*Brooklyn Rich and Alyssa Roberson work on a team-building exercise on their first day of Girls Rock Science*

*Saarah Shabazz and Sierra Allende collaborate on an activity*

"Girls start losing interest in science and math at 9 or 10 years old," said Bruce Bukiet, NJIT associate math professor who will coordinate LiFE's genesis with two other NJIT faculty members. "So the idea is to get them on the path when they're young and keep them there."

Girls Rock Science is run at Hurden Looker by co-creators Catherine Crisanaz and Johanna Williams, and Ashley Massa and Janice Ulzheimer. The teachers, who volunteer their time to run the afterschool program, will be essential members of the development team that will craft LiFE.

"Boys are often very passionate about science and sometimes unknowingly push the girls aside in the regular classroom," said Ms. Crisanaz. "We want girls to understand that if they are determined and work hard, they can do anything. I have watched very quiet girls come into the program and just blossom. Seeing that is incredibly rewarding."

Also coordinating the development of LiFE will be NJIT's James Lipuma, director of NJIT's Collaborative for Leadership Education and Assessment Research, and Nancy Steffen-Fluhr, director of the university's Murray Center for Women in Technology.

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***Engineering club applies knowledge***

*page 2*

John Ongwubonu, Jetro Coelho, Markenly Roseme, Geoffrey Anyansi, and Jesse Gonnerman work on the engineering club's catapult

# HHS club builds catapult

IF YOU ever want to storm a castle, Hillside High School's engineering club can help. The club's two dozen members, many of whom are enrolled in HHS' engineering classes, used their knowledge of physics and projectile motion to build a wood catapult capable of hurling an object more than 100 feet.

The 8-foot tall by 8-foot long machine was used in the annual pumpkin launch at the Picatinny Arsenal, a military research and manufacturing facility in Morris County. In the competition, teams from area high schools and junior high schools met to determine which catapult could launch pumpkins the furthest distance.

"The competition is a terrific way for kids to apply their knowledge and work together to achieve a goal," said Marc Aranguren, HHS science teacher and club adviser. "On the day of the competition, the students had a chance to talk with scientists and engineers to get feedback."

The club, which also participated in the arsenal's pumpkin sling last year, finished in 5th place.

Mohammed Elalem, an engineer from the arsenal, helped guide the young Hillside engineers through the construction process.

# Preventing animal abuse

FACTS about the horrors and prevalence of animal abuse recently took center stage at George Washington Elementary School, thanks to a group of caring fifth-graders.

After reading "Shiloh," an award-winning book about a young boy and an abused dog, Kelly Kurdyla's class wanted to take action to help prevent the abuse of animals in the real world.

Fifth-graders Isabel Videira and Nicole Telles work on their animal abuse awareness poster

"The kids came to me and asked 'What can we do?'" Ms. Kurdyla said. "They wanted to make a difference."

Ms. Kurdyla created a research-based project to channel her students' passion. Working in small groups, the students went online to research animal abuse and then created awareness posters describing the types of abuse that different animals are most often subjected to.

The completed posters, which included facts, lists of community resources, and prevention slogans, were hung throughout the school.

Akeem Orelien, Kevin Huang, and Simone Taylor

# Students spend summer at NJIT

Three students at Walter O. Krumbiegel Middle School spent the summer immersed in learning. Kevin Huang, Akeem Orelien, and Simone Taylor spent four weeks taking courses at New Jersey Institute of Technology that enriched their knowledge of science, technology, engineering, art, and math.

Akeem and Simone, both eighth-graders, took part in Introduction to Chemical Industry in Engineering, a course that allowed them to learn about chemistry and chemical engineering, environmental science, and computer applications used in the field. It included both classroom learning and hands-on lab work.

"I think science and math are very interesting, and I like to do experiments," Simone said. "This was a great opportunity to learn advanced things and experience life on a college campus."

Seventh-grader Kevin Huang was enrolled in Pre-Engineering. Like the chemical engineering course, Pre-Engineering mixed seminars, discussions, and hands-on learning. It provided an introduction to mechanical engineering concepts that are applicable in everyday life and taught computer applications and advanced math.

# They're i-Ready

Kindergartners and first-graders at A.P. Morris Early Childhood Center are using a new online assessment tool that will help their teachers personalize instruction.

Nevaeh Simon uses i-Ready

I-Ready identifies the specific strengths and weaknesses of students in reading and math so that teachers can tailor their teaching to meet individual needs and enhance learning. The program also provides fun and interactive learning games that help students practice the skills they need to work on the most.

In addition, i-Ready monitors the abilities of students throughout the entire school year to determine if kids are on-track to meet year-end achievement goals.

# Preparing students for STEAM jobs

## *Project Lead The Way at HHS focuses on science, technology, engineering, art, and math*

PROJECT Lead The Way, a nationwide program that teaches students real-world skills that involve science, technology, engineering, art, and math, enters its second year at Hillside High School with twice as many students and an incredible level of excitement.

> ***"I want people to make mistakes. It's how you learn. That's a tough concept for kids to understand at first."***
>
> **Dawn Knowlden**
> *HHS teacher*

PLTW focuses on teaching practical career skills and preparing students for college and other post-graduation training. Three fields are available for study at the high school level: biomedical science, computer science, and engineering. Multiple courses are available in each subject area. HHS currently offers one course each in biomedical science and computer science, and two in engineering.

### What kids learn

In **Principles of Biomedical Science,** students take on the roles of medical professionals (e.g., medical investigators, surgeons, biomedical engineers). Practical challenges are tackled that emulate those found in everyday life such as diagnosing diseases based on symptoms.

**Computer Science Essentials** engages students in true-to-life activities such as creating websites and developing problem-solving applications, while also teaching them how to use the professional programming language, Python.

In **Introduction to Engineering Design** and **Principles of Engineering,** students apply math, science, engineering principles, and their own creativity to projects such as designing self-powered cars and improving existing products. They also explore engineering topics including mechanisms, strength of structures and materials, and automation.

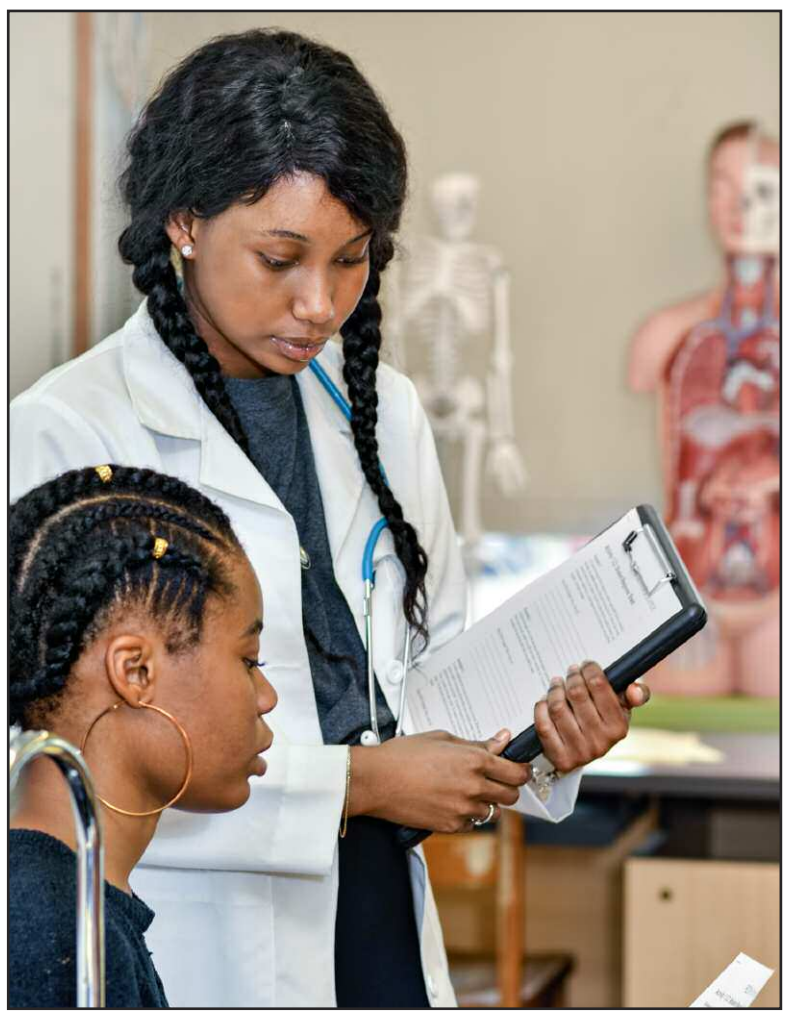
### Applying what they know

While the subject matter is different, all courses focus on hands-on activities, teamwork, critical thinking, and problem-solving. It's a type of instruction that most students are unaccustomed to, one in which creativity, collaboration, and application of their knowledge takes precedence over right and wrong answers. With a project-focused curriculum, it's all about the doing; trial and revision is the norm.

"I want people to make mistakes," said Dawn Knowlden, the veteran Hillside educator who teaches Computer Science Essentials. "It's how you learn. That's a tough concept for kids to understand at first. There's a process and you can always make something better."

More than 10,500 U.S. schools and 2.4 million students (K-12) are participating in PLTW courses this school year. (Walter O. Krumbiegel Middle School offers PLTW's Gateway program for eighth-graders.)

At HHS, Kayla Simmons teaches biomedical science and Marc Aranguren teaches engineering.



*Biomed students Ebubechukwu Nwoke and Sfederneley Pierre run a scenario to determine if patient privacy laws have been broken*

# Ribbon-cutting opens GW addition

THE district recently celebrated the completion of the new addition to George Washington Elementary School with a ribbon-cutting. The four new classrooms and full-sized gym allowed the district to house the sixth-grade there this school year, freeing up space at Walter O. Krumbiegel Middle School and reducing class sizes.

Participating in the ceremony were (as pictured at left) Christopher James, former board of education president; Carla Joseph, board member; Dr. Sharon Festante, GW principal; Kisha Chiles-Bass, board member; Hawaiian Thompson-Epps, board member; Juan A. Allende, board member; George L. Cook III, board member; (obscured) Sip Whitaker, Hillside councilman; Angela Garretson, Hillside mayor; Cherrena Dale-Rawls, GW PTA president; Andrea Lawrence-Hyatt, Hillside Township Council president; Calvin Lofton, former board president; Nancy Mondella, former board member; and Dr. Antoine L. Gayles, superintendent of schools.

# New class teaches kids coding skills

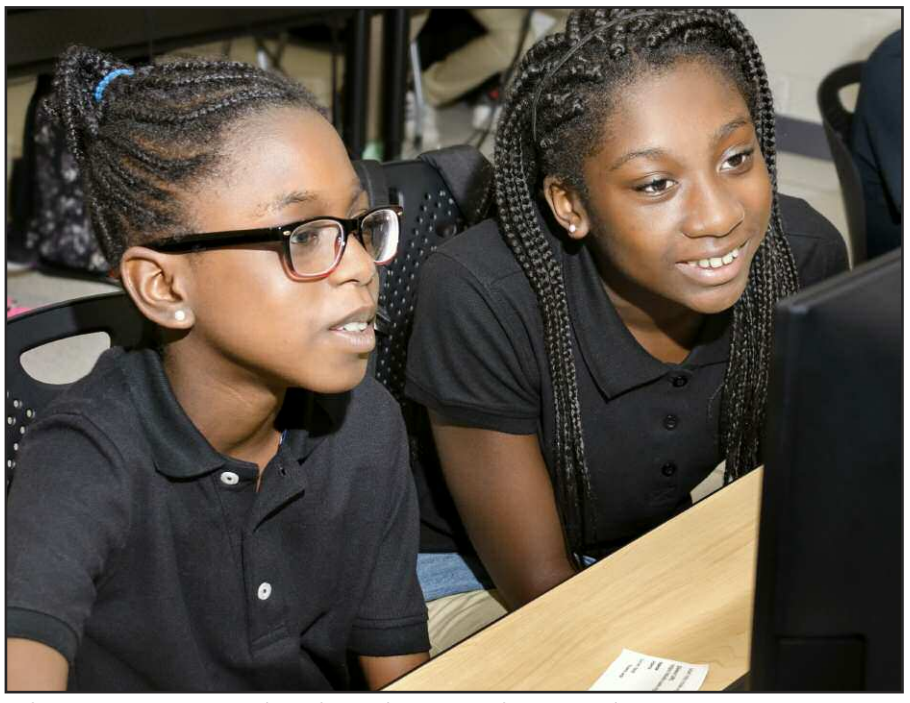
## *Sixth-graders learn 21st century computer skills in new coding and technology course*

A new sixth-grade computer coding and technology class has booted up at George Washington Elementary School. The year-long class, which is held in the new computer room of the school's recent addition, introduces students to the logic skills, computational thinking, and software they need to create their own interactive games and stories.

> ***"Through coding, students learn logic, math, collaboration, perseverance, and so much more."***
>
> **Nancy DaSilva**
> *Teacher*

"So many jobs of the future will revolve around programming and technology," said teacher Nancy DaSilva. "However, these skills are not just about tomorrow and careers. When students develop their computational thinking, they become better problem solvers. Through coding, students learn logic, math, collaboration, perseverance, and so much more. When kids succeed with a task or project, they truly feel empowered."

Much of the programming that the sixth-graders do is completed using interactive graphical interfaces. Working on computers, the students drag and drop on-screen blocks of actions that write the lines of actual code for them. These types of visual interfaces make it easy for students to understand the sequencing that is essential in computer science, while slowly introducing them to hard code – the nuts and bolts of programming. Websites such as Code.org, Scratch.mit.edu, and KoduGameLab.com that extensively use visual programming help students learn how computers think in a fun and challenging way.



*Abena Agyemang and Darling Altenor work on a coding project*

The class, though, includes much more than just sitting in front of a computer and working with code. Throughout the year, the sixth-graders will also have the opportunity to experiment with Lego Mindstorms EV3 robots, as well as design and create items using 3D printers and 3D printing software. Hands-on learning such as this keeps students interested and engaged, nurtures their critical thinking skills, and helps them develop a deeper understanding of technology and its practical uses.

*Rahim Graham, principal of Calvin Coolidge Elementary School, reads with Adriana Ortiz and Martide Glaude, second-graders in Patricia Henn's class*

# Individualized instruction

AT Calvin Coolidge Elementary School, a teaching strategy in place for years has been so successful, it's been rolled out in a different subject this school year.

Coolidge has been using guided reading for some time and began guided math in September. In guided reading and guided math, a teacher clusters students into small groups based on mastery of a certain skill. The teacher then works with each group separately to address the unique learning needs of students. This technique provides students with more personalized attention and is designed to accelerate growth.

# *Students prepare for council election*

THIRD- and fourth-graders at Hurden Looker Elementary School are gearing up to run for student council. They're making posters and preparing speeches to deliver to their classes that articulate who they are and what's important to them.

One student will be elected from every third-grade and fourth-grade classroom. They'll meet once a month with teacher Chris Derflinger, the program's adviser, and share their opinions and ideas. Mr. Derflinger began the program last year as a way to listen to students and understand their perspectives on keeping Hurden Looker a great place to learn. A number of concerns voiced last year by the council representatives were addressed in tangible ways, such as additional hallway monitoring.

Serving on the council also had an impact on the students themselves.

"You saw quiet children come out of their shells," said Mr. Derflinger. "I heard from so many parents that their kids gained a ton of self-confidence."

About two dozen students will serve on the council this year.

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