

# the Y-12 times

A newsletter for employees and friends of the Y-12 National Security Complex

Inside ...

## Buttons, pg. 2

Buttons aren't only for the clothing industry.

## STEM, pg. 8

Y-12's contributions to Knoxville's L&N STEM Academy are a sound investment.

May 2012

### Want more information about the HEU removal?

Footage of *The Rachel Maddow Show* can be seen on the NNSA website at <http://nnsa.energy.gov/blog/nnsa-heu-removal-featured-rachel-maddow-show>.



A U.S. Air Force crew member moves low enriched uranium at a Mexico airport. Y-12 has recovered and secured nuclear materials from Mexico, France, Chile and the United Kingdom, as well as from several U.S. sites.

Photo courtesy of NNSA

## Mexico says 'hasta la vista' to HEU

Film crews from national television stations don't usually go on classified missions. However, MSNBC's Rachel Maddow was granted special access to report on the successful removal of highly enriched uranium from Mexico's National Institute for Nuclear Research in February.

Y-12 was tasked by the National Nuclear Security Administration's Office of Global Threat Reduction (more commonly known as the Global Threat Reduction Initiative or GTRI) to support the packaging and removal of fresh HEU from Mexico's Training, Research, Isotopes, General Atomics (or TRIGA) II Research Reactor, located south of Mexico City. This GTRI project not only included the shipment of fresh HEU TRIGA fuel to Y-12, but also the shipment of irradiated HEU TRIGA fuel to Idaho National Laboratory.

Y-12's expertise in uranium operations, transportation, its unique facilities and its dedicated work force are a significant part of NNSA's mission to protect and secure nuclear materials. Y-12 also supplied new fuel elements and low enriched uranium to complete the conversion of the TRIGA reactor from HEU to LEU, which supports the GTRI and international efforts to minimize HEU in civilian applications.

"While bringing the HEU to be housed at Y-12 is paramount, we are also supporting efforts to convert research facilities to LEU. Most facilities see the positives of conversion to LEU due to the change in security posture and the increased availability of LEU," said Gerald DeVault, director of Y-12's Nuclear Nonproliferation and Global Security Programs.

The 2010 Nuclear Security Summit launched a more aggressive approach to securing the world's vulnerable nuclear material. With the conclusion of the 2012 Summit in March, the GTRI scope has grown even larger, and Y-12 remains ready to engage in more missions.

Viewers of *The Rachel Maddow Show* received an inside look into a foreign research reactor and removal operation, rarely shown to the public. As Mexico says 'adios!' to HEU, preparations and agreements continue for future operations to reduce nuclear dangers around the world.



Technicians from Y-12 brief National Nuclear Security Administration's Administrator Tom D'Agostino on the Feb 14, 2012, recovery from Mexico.

Photo courtesy of NNSA

# Perseverance pays in high-quality buttons

In the late 1950s, production of enriched uranium buttons used to provide high-purity metal for the manufacture of weapons parts was at its peak at Y-12. During the next three decades, production continued at a slower, yet steady rate. Large numbers of buttons were produced from the 1950s to the 1990s. In 1992, however, button production was halted.

Purified metal process operations at Y-12 idled for more than 10 years. When restart was approved, more rigorous rules and equipment changes altered the manufacturing environment. Consequently, replicating past production processes to attain the same level of button quality proved challenging.

Button production begins with a chemical recovery process that reclaims enriched uranium by removing impurities from scrap material. Because the actual chemistry for manufacturing buttons had not changed, the production team initially focused on running processes using historical parameters. However, the quality of buttons that resulted failed to consistently meet previous levels.

In an effort to ascertain and adjust key process parameters, the Button Quality Improvement Team was formed. The team focused on the last three processes leading to metal buttons — the denitrator, the oxide conversion facility and metal reduction. “We made adjustments to those processes until we found the right combination,” said the senior process engineer who leads the team.

Another process engineer added, “A lot of things that affect button quality had changed. We didn’t realize how much until we restarted the processes. Instead of trying to do what was done in the past, we had to find our sweet spot.”



The above left example illustrates current improvements in button quality. Work continues to ensure consistent high quality.

*Today, button quality is approaching levels observed before production halted in 1992. The team continues to work toward producing a consistent high-quality product.*

## Employees honor veterans

On April 18, 130 World War II and Korean War veterans boarded a plane at the McGhee Tyson Airport in Knoxville as part of the 12th HonorAir Knoxville flight. HonorAir Knoxville is a nonprofit organization that flies East Tennessee veterans of WWII and the Korean War to Washington, D.C., to see the nation’s war memorials.

Y-12 employees nominated the April HonorAir Knoxville flight as a Day of Volunteering project. Employee involvement began early the morning of the flight, when Steve Kyle from Safeguards and Security met up at McGhee Tyson Airport with 18 area Boy Scouts. They greeted arriving veterans and escorted them to awaiting guardians who accompanied the veterans during the trip.

Brent Wilhoit from Program Management was one of the guardians, and he acted as chaperone for three WWII veterans. Wilhoit, who served in the U.S. Marine Corps, was impressed that “the entire day was dedicated to these veterans.” As the chartered plane taxied to the runway, the airport fire department shot water cannons over the plane. Wilhoit said a band and supporters greeted the veterans in Washington, D.C.

The veterans toured six memorials, visited the Tomb of the Unknown Soldier and returned to Knoxville around 9:30 p.m. the same day. A crowd several hundred strong, including more than 60 Y-12 volunteers, formed a welcome tunnel at the airport. “This was a really special ending to a great day for these veterans,” said Wilhoit. “We were all proud to be part of this.”



For the past two years, Y-12 employees have made HonorAir Knoxville one of their Day of Volunteering projects.

# Putting training to good use

As the heating, ventilation and air conditioning, or HVAC, apprentices reach the end of their fourth year in the five-year program, the Customer Service class called for hands-on experience. With the help of a couple of journeymen, four HVAC and four pipefitter apprentices furthered their training, while also helping out a local nonprofit association, Knoxville Area Rescue Ministry's Serenity Shelter.

"A lot of the work apprentices do involves work orders and procedures, and they miss getting to work directly with customers," said John Whalen, chief steward of the HVAC group. "This opportunity at the Serenity Shelter served two purposes — helping them sharpen their customer service skills, while providing the shelter with much needed maintenance work."

In addition to fixing HVAC problems and performing preventive maintenance on the units, the apprentices fixed plumbing issues, pressure washed the facility exterior and provided landscaping work using equipment donated by an apprentice's personal business.

Tim Milligan, air conditioning and refrigeration mechanic and an apprentice instructor, went to the Serenity Shelter with the apprentices. "After seeing how much work needed to be done beyond what the apprentices could provide in one day, some of them willingly went back for a second day of work, purely on their own time," said Milligan.

The Serenity Shelter, a residential program that provides recovery services and case management for women, was very appreciative of the skilled volunteers. "With a hardworking and generous attitude, the Y-12 team performed maintenance that was long overdue," said KARM's Jenna Cross.

If you've got the volunteer spirit, you can volunteer at KARM or one of the many other approved projects for the 2012 Volunteer Day on May 18-19.



Working at the Serenity Shelter are Jonathan Bowling and Rodney Howard (sitting). From left, standing, are Josh Howard, Lance Branum, Tim Milligan, Tracy Miller, Brandon Gibson, Steve Dodson, Ben Kerwin and Rebecca Hawn.

# 5 ways Y-12 makes a difference

Each year, Y-12 releases its Community Investment Report summarizing the economic impact the site has on the state, surrounding communities and local charities. You might be surprised at how far that reach extends. For a more detailed look at fiscal 2011 investments, visit the Y-12 external website ([www.y12.doe.gov/community](http://www.y12.doe.gov/community)).



Girl Scouts visit a discovery center at the University of Tennessee's Society of Women Engineers conference; several Y-12 employees were involved.

## 1. Businesses

Y-12 issued more than \$348 million in subcontracts, with 66.5 percent going to businesses in Tennessee. Small businesses received \$167 million of that work.

## 2. Jobs

With more than 4,600 employees and 2,350 subcontractors, the sheer magnitude of Y-12 results in a significant economic impact on our community. By contributing billions of dollars to East Tennessee through operating revenue, wages, taxes and pensions, Y-12 helps generate thousands of area jobs.

## 3. Taxes

Y-12 paid the state of Tennessee more than \$13.6 million in taxes, a portion of which the state returns directly to Oak Ridge and to Roane and Anderson counties.

## 4. Donations

B&W Y-12 invested \$737,000 in more than 100 East Tennessee nonprofit organizations. The company pledged \$400,000 over four years to Knoxville's new Science, Technology, Engineering and Mathematics Academy (see related article, pg. 8) and \$250,000 over four years to Emory Valley Center, a program helping people with disabilities. Y-12 is one of the region's largest United Way contributors and raised \$961,000 in employee and corporate contributions.

## 5. Volunteering

In addition to Y-12 financial support, hundreds of employees serve in local government; volunteer as mentors, tutors, coaches and scoutmasters for youth; and as coordinators for community projects. During Day of Volunteering, more than 1,000 employees, their family members and friends tackled 60 projects to help nonprofit organizations.



# tap water: Sparkling clean

Rumors are common in the workplace, and Y-12's Utilities Management knows there are some circulating about the drinking water at Y-12. But Chuck Hurst, Utilities Management's potable water system engineer, wants to send those rumors down the drain.

"The Y-12 potable water system is rigorously tested for water quality. If there was a problem with our system, we'd know about it," said Hurst.

Routine water samples are collected at random points. According to Hurst, chlorine samples are collected every day. The water is tested site-wide for microbiological evidence six times each month, and disinfectant byproduct samples are collected each quarter. The water is also tested for lead and copper in more than 30 locations every three years.

"At Y-12, these samples never leave my possession; I hand-deliver them to the state laboratory, where they're tested. We utilize the lab as a means of outside confidence and reliability on the quality of our system. I have every record and result right here," said Hurst.

There are sure to be concerns about the condition of pipes when you work in a more than 60-year-old facility, but Hurst assures Y-12 employees that every pipe is sealed and protected.

"If we have to open a potable water line for maintenance or repairs, we immediately disinfect and re-test the water. We take every precaution possible to ensure the water maintains the best quality at all times," said Hurst.



Utilities Management's Chuck Hurst washes water rumors down the drain.



Employees are putting water fillers to use. About 20 more will be placed around the site this year.

## Dual green project saves costs and helps the environment

As the environmental officer for the Analytical Chemistry organization, Paula Roddy-Roche is always open to ways to reduce, reuse, recycle and become greener, so when co-worker Myra White suggested a water filler for the group, she checked into it.

"We have previously purchased bottled water for employees who work in the field," Roddy-Roche said. As a dual green project (save costs and help the environment), ACO purchased a bottle filler — easy to place a water bottle under — that provides filtered, cold water on demand.

"I fill up a couple of 32-ounce bottles every morning and use the filtered water instead of using bought bottles of water," White said. "We're saving costs and saving the environment by not having to recycle the plastic bottles."

"It was a great way for us to be greener," said Roddy-Roche. "It took some legwork in the beginning, but the effort was worth it."

ACO's Radiochemistry and Isotopic Analysis Manager Darrin Mann appreciates Roddy-Roche's effort in getting this water system installed. "She showed a lot of initiative and perseverance to try and change the water drinking habits of the people in ACO."

ACO isn't the only one using the fillers. "There will be approximately 20 of these fillers around the site this year," said Steve Little, Facilities, Infrastructure and Services vice president and Sustainability Team's management champion. "We hope to continue to expand installation of these bottle filling stations to minimize bottled water expense and plastic wrap."

# Jeopardy and science: A winning combination

An avid *Jeopardy!* watcher, Tony Grappin gets excited about trivia. But he really gets charged up when he volunteers at the Tennessee Science Bowl.

“It’s sad how excited I get,” Grappin laughed. “But it’s such a great thing to be able to see firsthand how smart these kids are.”

Grappin, an engineer, was one of a dozen Y-12 employees to volunteer for the 2012 Science Bowl, a DOE-sponsored event that featured 48 teams representing a record 44 high schools from across the state. It has become an annual tradition for many.

“I had a blast the first year I did it, so I’ve just kept doing it,” Grappin said. This year he served as a moderator, reading questions to two teams of four students each for 16-minute sessions. Competition questions cover a wide range of science-related disciplines, including chemistry, biology, earth and space science, math, physics, and energy.

Grappin recruited his friend, a fellow Y-12 engineer, Anita Bowman to join him at this year’s event. “It’s important to invest in the future,” Bowman said. “These kids are at such a pivotal point in their lives, and they’re doing something worthwhile.”

Bowman and Grappin both believe STEM (science, technology, engineering and mathematics) disciplines hold the key to our country’s future. “As we lose manufacturing jobs, we need a lot more science. Technology, medicine and engineering are going to be so important in helping the U.S. remain a world power and in fueling our economy,” Bowman said. “Events like this give students an opportunity to pursue STEM fields early on.”

“It’s a really fun and easy way to give back to the community,” Grappin added. “Students are studying for this year-round, and it facilitates their interest and growth in these subjects.”



Y-12 engineers Tony Grappin and Anita Bowman volunteer as judges at the Tennessee Science Bowl.

## *The good life keeps getting better*

When John Emch retired nearly 20 years ago, he did so with one slight regret. He said, “I always think, what more could I have done?”

Although none of his former coworkers would consider Emch anything but a hard worker, he advises current and future employees to “be the best employee you can be because when you look back, you’ll always wish you did more.”

Following in the footsteps of his older brothers, Emch came to Y-12 in 1956 after being discharged from the U.S. Marine Corps. During his time here, he primarily worked as a health physics technician, what’s now Radiological Control. Serving as both lead technician and eventually supervisor, Emch worked in all areas of the plant. He also spent some time traveling to other U.S. Department of Energy sites for bioassay and in vivo scanning of employees.

Having undergone some health issues, Emch’s doctor urged him to retire. So with a little remorse and 35 years of company service under his belt, he retired in 1992.

Emch and his wife of nearly 55 years, Kathleen, have enjoyed their 20 years since his retirement. Besides traveling, gardening, bird watching and yard work on his three-acre lakeside home, Emch enjoys spending time with his growing family. On a pretty day, you may see Emch driving his golf cart through his neighborhood.

Even though Emch has been retired for a couple of decades now, he stays current with Oak Ridge happenings through his four children, three of whom work on the reservation in some capacity. He’s glad his children have chosen to follow in his professional footsteps.

“I wish everyone could have a life as good as I’ve had,” Emch said.

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## Reconnect with retirees

If you know a Y-12 retiree who would share his or her new life with employees, please contact Amy Alley (alleyab@y12.doe.gov) or Mary Bryant (bryantma@y12.doe.gov).

# Y-12 THROUGH THE DECADES — TURN OF THE CENTURY

After the Cold War, the entire Y-12 site felt the impact of workforce reduction. Important work remained and facilities needed attention, but changing missions and the resulting cutbacks in personnel created a general sense of foreboding and frustration on-site. It was not something Y-12 workers were accustomed to feeling.

Meanwhile, the struggle to reinforce and expand the procedure-based operations as certain difficult processes were brought back up added to the unease. Y-12's "Can Do" attitude was taking a beating.

Yet production schedules were still met. In the late 1990s, Y-12 completed the necessary work to upgrade the B61-11 weapon system and to produce the first W87 life extension program unit, both ahead of schedule.

With the turn of the century came a new contractor and a renewed spirit. Revitalization and modernization began to take hold. For the first time in 30 years, a new production building was being constructed. And, design was started on a new enriched uranium storage building that would be the world's most secure storage warehouse, and even that design was being upgraded.

The new contractor brought in approximately 100 new managers with fresh perspectives and an eagerness to make substantial improvements quickly. Longtime employees faced these new changes with mixed emotions. While workers welcomed the improvements and the necessary scrutiny of operations from fresh eyes, many also trusted the traditional systems they had relied upon for years and that worked quite well.

However, everyone soon joined together and began to make improvements to the site, making the most changes Y-12 had seen since the Manhattan Project. Housekeeping improvements, demolition of old structures, construction of new buildings—all of these meant that a new, and even more enduring face for Y-12 was in the making.



IMPROVEMENTS



HOUSEKEEPING



MODERNIZATION

*revitalization*

Purification Facility



# Around Y-12 ...

- **Two Y-12 employees were recognized recently for contributions to the National Nuclear Security Administration's Defense Programs.** Harry Peters from the Y-12 Site Office and Kathy Bracic of B&W Y-12's Facility Engineering Organization have both been named NNSA DP Employee of the Quarter. As the Uranium Processing Facility director, Peters and his project team rapidly fulfilled an NNSA request for an alternative UPF project plan in light of fiscal 2013 budget considerations. As project engineer, Bracic led the completion of the nondestructive laser gas sampling project.
- **Y-12 will host a Uranium Processing Facility Glovebox Supplier Forum May 9–10.** The forum will provide an opportunity to interface with procurement, engineering and quality specialists to learn more about the requirements for gloveboxes that will be used in UPF. The event will be held at New Hope Center.
- **In honor of Earth Day, four area organizations received donations from the Y-12 Aluminum Beverage Can Committee.** Anderson County YoungLife, Keystone Adult Day Program, Learning Ally and Volunteer Ministry Center Broadway Clinic each received a \$200 donation, thanks to employees recycling their ABCs.
- **Did you see the interview with University of Tennessee Chancellor Jimmy Cheek and Y-12 President and General Manager Darrel Kohlhorst?** The two were interviewed April 4 by WBIR's John Becker for the station's newsmaker segment and talked about the partnership between UT and Y-12. You can watch the video at WBIR's website (<http://www.wbir.com/video/1547565355001/1/News-maker-UT--Y-12>).
- **Y-12 is one University of Tennessee partner working on the UT Institute for Nuclear Security.** The collaboration also includes Oak Ridge National Laboratory and Oak Ridge Associated Universities. UT officials said in an announcement, "Speculation over the nuclear ambitions of countries like Iran and North Korea and debate over proposed nuclear reactors in the U.S. and abroad make it apparent that the need for nuclear security experts did not end with the Cold War." Check future issues of *The Y-12 Times* to find out more about Y-12's role.
- **Former U.S. Representative Zach Wamp dropped by Y-12** for an interview that was included in the last episode, *Lifting the Veil*, of "A Nuclear Family: Y-12 National Security Complex," a four-part history series that aired on East Tennessee PBS. All episodes are available online at the Y-12 History Center's public website (<http://www.y12.doe.gov/about/history/video.php>).
- **About 100 children participated in the Y-12 Employees' Society Egg Hunt at Clark Center Park March 31.** At the end of the hunt, each child received a bag of candy and up to ten prizes, based on the number of eggs found. This was the fifth annual egg hunt organized by YES.
- **B&W Y-12 presented a check for \$25,000 to the Boy Scouts of America,** Great Smoky Mountain Council, in early April. The money will go toward the Great Smoky Mountain Council Capital Campaign, which supports capital development projects at Camp Buck Toms and Camp Pellissippi. This money is in addition to a \$5,000 B&W Y-12 corporate contribution (and individual employee contributions of \$4,100) made in February, bringing B&W Y-12's total contribution for this year to \$34,100.
- **Visitors from the U.K. Atomic Weapons Establishment were among 25 attendees at the first meeting of the Manufacturing/Production Steering Committee,** held at Y-12 in March. The new steering committee will oversee all U.S./U.K. joint working group meetings — technical exchanges dealing with nuclear design, new science and engineering. The steering committee also appointed one representative each from the U.S. and U.K. to attend Second Level and Stocktake meetings, which involve top officials and advisors from both countries. This will be the first time production sites have had representation at Second Level and Stocktake meetings, where decisions are made affecting public policy.



## MAY

### 61 years

Production: **James E. Thompson**

### 45 years

Classification: **Wendell W. Jones**

### 43 years

Engineering: **Lonnie E. Cochran**

Projects: **Samuel D. Babb**

Resource Management: **Bill A. Shipwash**

### 42 years

Document and Property Management: **James D. Huddleston**

**Huddleston**

Quality Control Inspection and Testing:

**Harold E. Warrington**

### 41 years

Document and Property Management:

**Edwena L. Crowe**

### 40 years

Earned Value Management System and Services:

**Jacob Brown**

### 35 years

Analytical Chemistry: **Derek H. Bowman**

Communications Services: **Lynn J. Beck**

Information Technology: **Charles A. Barton,**

**Rebecca N. Bolling**

Production: **Sherry P. Hill**

Program Planning: **Timothy R. Thaxton**

Resource Management: **Donald R. Hamilton,**

**Billy L. Hooks, Jerome Roscoe, and James H.**

**Talbott**

### 30 years

Emergency Services: **Jeffrey B. Jolly**

Nuclear Nonproliferation and Global Security

Programs: **Carl K. Williams**

Production: **Eldred A. Pegues**

### 25 years

Chief Financial Officer Division: **Christine M. Liles**

**Liles**

Emergency Services: **Larry W. Herron**

Engineering: **William G. Waldrip**

### 20 years

Employment Services and Recruiting: **Dana J. Rupert**

**Rupert**

General Accounting: **Debbie A. Hash**

Nuclear Nonproliferation and Global Security

Programs: **Gerald L. DeVault**

Radiological Control: **Diana L. Davis**

## In memoriam

**S**usan Beeler of Business Services and Performance Assurance passed away April 3. She had 20 years of company service.

**G**ene Marsh of Design Engineering passed away March 20. He had 9 years of company service.

Each employee is listed as a member of the organization in which he or she last worked.

Y-12 offers condolences to their friends and family.

**K**arl Rapp of Chief Financial Officer Division passed away March 14. He had 31 years of company service.

Co-worker Sharon Eason said, "Karl was very dedicated to his job and truly enjoyed coming to work each day as well as his interaction with co-workers and associates. Even at the lowest time of his illness, he spoke of returning to work. He conveyed care and concern for his employees and will be missed by all."

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[www.y12.doe.gov/news/times.php](http://www.y12.doe.gov/news/times.php)

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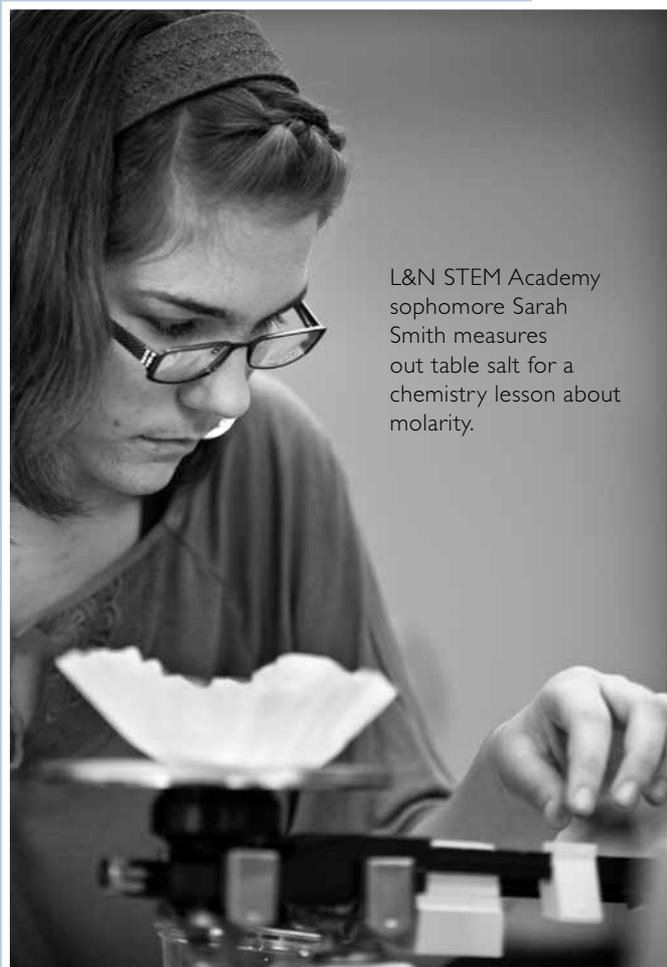
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## Four ways Y-12's helping new area school

As a regional leader in science, technology, engineering and math, Y-12's contributions to Knoxville's L&N STEM Academy are a sound investment. Here's what Y-12's doing to help these local students.

- The school's newly opened "B&W Y-12 Chemistry Laboratory" is named in recognition of Y-12's parent companies' \$400,000 financial contribution. An April dedication ceremony at the school honored B&W Y-12's support.
- Y-12 employees volunteer in the classroom. Mike Antonas, a project engineer with a structural engineering background, guided the students through the design process for a real-world application — building a bridge to connect the two buildings in downtown Knoxville that comprise the students' classrooms. Virtual testing gave the students feedback on the load-bearing limitations of their designs.
- School administrators and after-school clubs benefit from Y-12 employee know-how. John Gertsen, vice president of Uranium Processing Facility Programs, is actively involved with the school's Industrial Advisory group, which helps identify and establish other area partnerships for the school. He also lends his time and expertise to the school's Robotics Club.
- Opportunities — mentoring, speakers and tours — are being explored.

"This school is different," said sophomore Sarah Smith. "As students, we choose to leave our old schools and come here. We are really grateful for the community's support."



L&N STEM Academy sophomore Sarah Smith measures out table salt for a chemistry lesson about molarity.