For middle school students, college is either an unstated expectation or an unrealistic dream — or a hazy vision they can’t quite grasp yet. But for fifth- and sixth-grade students at KIPP Inspire Academy in South St. Louis City, college is a clear expectation — even though many of these students will be the first in their families to experience higher education.

KIPP students are all African American, almost all (97 percent) qualified for free and reduced lunch, and all live in St. Louis City. In addition, most students entering fifth grade read at or below a second-grade level. For these students to consider college, KIPP provides the skills they need to grasp a college preparatory high school program.

When they enroll at KIPP, students understand the journey won’t be an easy one. KIPP has an extended school year, including three weeks of summer school. The daily schedule runs from 7:30 a.m. to 5 p.m., with many students eating breakfast and lunch at school. In addition, each student has about 90 minutes of homework, or “lifework,” as the school calls it, every evening.

The school’s halls and classrooms display signs reading “climb the mountain to college.” These are matched with banners and t-shirts from various colleges, local and national. Among the banners are several from Washington University in St. Louis, KIPP’s sponsor.

“Public education — and urban public education — in St. Louis is challenging,” says Williams. “We’re working to engage every student, every day, because that’s how learning happens. Summer school this year was a successful experiment in seeing how we can create exciting learning opportunities.”

Rachel Ruggirello, science educator, and Latrease Davis, sixth-grade student at KIPP Inspire, discuss concepts from a story. The STEP literacy assessment program used at KIPP allows students to chart their growth in reading and comprehension.

Project-based learning engages University City summer school students at Brittany Woods

Brittany Woods turned the concept of summer school upside down for 2010. Instead of viewing summer school as simple remediation, Brittany Woods principal Jamie Jordan and assistant superintendent Chauna Williams, both of the School District of University City, envisioned something different.

They held professional development with teachers before the summer began. Victoria May, director of K-12 educational outreach and assistant dean in Arts & Sciences; Phyllis Balcerzak, director of professional development; and Rachel Ruggirello, science educator, led sessions in project-based learning units, and helped the teachers organize the summer school curriculum in broad-based projects.

The projects included an analysis of the CSI television shows, and how investigators collect evidence, interview subjects, and draw conclusions. Another project involved health and fitness. Students played the role of a health advisor counseling an individual who would like to lose weight. Students charted personal indicators and food intake as they participated in daily exercise to determine changes in their own health.

A tour of Busch Stadium coincided with a unit on art and architecture. Students considered problems such as how baseball stadiums can be designed to decrease the number of home runs and how seating capacity be increased without decreasing seat size. For their final project, students prepared a presentation and built a model of the stadium they designed.

“This is the most engaged I’ve ever seen summer students,” says Williams. “We’re working to engage every student, every day, because that’s how learning happens. Summer school this year was a successful experiment in seeing how we can create exciting learning opportunities.”

Connecting Art and Science

Elementary students in University City become a blur as they demonstrate how electroparticles flow in a circuit. Joshua Hasam, ‘11, foreground, and Anide Duval, ‘11, background, play the roles of battery and lightbulb. Students investigated electricity at Delmar-Harvard Elementary, then attended a performance of Darwin at the Edison Theatre. CORBIAN Visual Art and Dance staged the story using glowing life-size puppets created from electroluminescent wires.
St. Louis Public Schools principals convene at WUSTL

If a teacher’s school year begins in early August, it’s not surprising that for principals, the school year begins in June. For St. Louis Public Schools’ administrators, 2010-11 kicked off less than one month after school ended when principals and district administrators returned to WUSTL for their annual retreat, reflection, and planning.

“Washington University provides the expertise and facilities we need to debrief from the school year,” says Sheila Smith-Anderson, director of leadership development for St. Louis Public Schools. “Although the length of the meetings was shorter this year, the group chose to come back to Washington University over our other options.”

During the four days of meetings, superintendent Kelvin Adams guided the principals through goals and strategies that they developed working with the Public Education Leadership Project at Harvard University. Built around the instructional core model advocated by Richard Elmore, professor of educational leadership at the Harvard Graduate School of Education, the framework serves as a building block for the district’s accountability plan.

Faculty at the Olin Business School helped the district’s leaders put the plan into context. Samuel Chun, senior lecturer of marketing and executive programs, and Jackson Nickerson, Frahm Family Professor of Organization and Strategy, led sessions on business models as they apply to education. Nickerson focused on school management processes and helped the group define critical priorities for their daily work.

Hollie Russell-West, principal at Oak Hill Elementary, remembered how Nickerson’s guidelines could help new administrators. “In your first year as a principal, you spend your time trying to find solutions,” she says. “But when you have time to reflect, you realize you were spending your time trying to find solutions to the wrong problems. Jackson gave us a system for determining which problems need our attention and which ones don’t.”

The meetings also included working sessions designed to help administrators put theory into practice. For a busy group divided in separate buildings day to day, the leadership retreat was a welcome opportunity to regroup.

“We like to spend time with each other,” says Margaret (Peggy) Meyer, principal of Woerner Elementary. “It gives us a chance to work together and recharge.”

KIPP Inspire

KIPP Inspire opened its doors in July 2009 with a class of 80 fifth-graders. Early indications from students at 37 other KIPP schools. Students at St. Louis progressed on schedule and twice as far as predicted based on national averages.

“It couldn’t be prouder of all the hard work by our students and teachers over the past year,” says Jeremy Esposito, KIPP Inspire’s founder and school leader. “If they continue learning at this rate, they’ll be ready for a demanding college prep program when they finish eighth grade.”

Weber, who came to WUSTL in 2008 from the University of Chicago, has experienced first hand how an urban university can be a key partner in the public schools. He has encouraged WUSTL faculty, staff, and students in various projects with KIPP teachers and students, including teacher professional development and tutoring. For 2010-11, Weber has supported KIPP’s adoption of the Strategic Teaching and Evaluation of Progress (STEP) program, an assessment tool that helps students progress in reading and comprehension. Rachel Hogbin, fifth-grade learning support specialist at KIPP, says STEP has already had a positive impact.

“We’re a data-driven school,” says Hogbin. “Our goal is to increase kids’ reading level at least two grade levels from where they began. We use STEP to form groups of students who have the same needs. It’s great for them to see the growth; it’s absolutely motivating. Our main focus is increasing their ability to think critically and make inferences based on what they read.”

At the start of its second year in July, KIPP added sixth grade so its first class could continue at the school. KIPP Inspire will add a grade each year until grades 5-8 are offered at the school, and the first class of KIPP Inspire students heads to high school. For these students, it will be another milestone toward their destination as members of the class of 2021.
Local ecology researchers branch out with high school team members

It’s a blazing hot summer day at Tyson Research Center, where the woods often provide shady relief for ecology researchers.

But today, a team is clearing brush under the beating sun in preparation for a study of biodiversity in forest glades. The glades are created by removing trees from existing forest. A group of ecologically minded high school students is lending much-needed stamina and muscle.

The students are participants in the Shaw Institute for Field Training (SIFT) and Tyson Environmental Research Fellowship (TERF) programs, supported by a $1.6 million grant from the National Science Foundation. Susan Flowers, science educator, coordinates the program for principal investigator Jon Chase, professor of biology and director of Tyson.

“When we developed the project, our central question was, could high school students and ecological researchers add value to each other’s learning and work?” says Flowers.

“Now, in our third year, we’re finding the answer is yes. Everyone is so excited about what they’re doing, either because as researchers they have extra help or because as high school students they are participating in original research.”

“Right now we couldn’t be getting research done at the level we are without the high school students,” says Chase. “I’m always happy to have students here from an educational perspective, but I was nervous that it would come at a cost of doing the best science possible. As a PI [principal investigator], I look at educational programming with my researcher hat: the integrity of the research is the most critical aspect of the work. We’ve added undergraduates to our team successfully. But we didn’t know if we could also do it with high school kids.”

“It turns out they could. Both Chase and Tiffany Knight, associate professor of biology, found that the SIFT and TERF interns could provide the extra hands they needed to clear more glades and do more thorough sampling of plant species. Knight was able to complete biomass sampling of more than 100 plots through the added help from high school interns.

“It’s not just WUSTL researchers who are branching out. James Trager, restoration biologist at the Missouri Botanical Garden’s Shaw Nature Reserve in Gray Summit, Mo., has expanded his ant colony research to sites at Tyson. He also works with the interns to teach them basic research techniques.

“In school, you see data table after data table,” says Monica Lee, junior at Ladue High School, who worked with the forest glade team. “Then you get here, and you see how there’s a purpose after all! It’s like science camp but with work and learning a lot.”

Fallen branches litter the ground at Tyson Research Center, as Jocelyn Lee, junior at Clayton High School, assists in clearing brush. Lee worked with Jon Chase, professor of biology, and his research team to create a glade for a biodiversity study.

Sunlight filters through the tree canopy as teachers take a walk in the woods with Eddie Jones, left, teacher educator at the Missouri Botanical Garden’s Litzsinger Road Ecology Center. Teachers at schools that will receive visits from the MySci Investigation Station in 2010-11 participated in summer experiences to help them connect the environment to their K-2 classrooms.
Thank you to WUSTL and community faculty, staff, and student partners

Sharing the excitement of learning and discovering is done best by people who are passionate about what they study and teach. The individuals who collaborate with us contribute their ideas and interests, and make our programs uniquely rigorous and engaging. Thank you to the 95 faculty, 22 staff, 38 graduate students and postdocs, 18 undergraduates, and 14 individuals and representatives from partner organizations who contributed their time and effort to our 2009-10 K-12 programs.

Faculty
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Undergraduates
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Programming robots with success
brings smiles to the faces of Niosha Grant, sixth-grade student, Gary Gore Elementary (Jennings); Lexi Randman, eighth-grade student, Hazelwood North Middle; and Cameron Thomas, seventh-grade student, Westminster Christian Academy. They participated in the ExxonMobil Bernard Harris Summer Science Camp at WUSTL in June. Campers experienced residential life, science investigations, field trips, service projects, and problem-solving challenges on energy and sustainability.