



# CRACKING THE INNOVATION CODE

*How a large district cultivated,  
systematized, and protects a  
true culture of innovation*

**Parkway School District**  
Chesterfield, Missouri



## ABOUT THE INNOVATIVE SUCCESSFUL PRACTICES PROJECT

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Dear Educator,

Beginning in 2017, the Successful Practices Network (SPN) and AASA The School Superintendents Association have been conducting a study of innovation best practices in public K–12 systems from throughout the United States, with support from global learning company Houghton Mifflin Harcourt (HMH).

Dr. Bill Daggett has led a team of nationally recognized superintendents, researchers and data analysts to identify systems that are using innovative approaches to put students first by expanding and supporting student learning and achievement. Schools and districts were selected for further study based on a national search conducted by thought leaders and experts at HMH, SPN and AASA. HMH supported this effort by providing research and reviewers as part of its work to partner with school districts on improving student outcomes.

From that study, 25 national Innovative Successful Practices systems were identified based on their ability to demonstrate rapid improvement in student learning and preparedness through innovative organizational and instructional practices.

Each of those 25 systems collaborated with SPN and AASA to host an on-site visit, detailed data analysis and development of a case study. These case studies are intended to provide an accessible and nontechnical overview of each innovative approach that is backed up with data-driven results.

The participating systems include a wide range of geographies, demographics, student population and resource levels. In spite of those differences, each of these systems shares a common mindset that innovation can drive public education with a strong focus on serving the needs of all of their students.

We have been inspired by the lessons learned from these courageous leaders that took risks to think beyond their traditional systems and approaches. It is our hope that this work continues to inspire, inform and support public education leaders in their efforts to prepare students for success both in school and beyond school.

“The world that our children will live, work and interact in will be fundamentally different than the world we all grew up in,” said Bill Daggett, Founder and Chairman, International Center for Leadership in Education. “To prepare them for success in this changing world our schools need to make fundamental changes as well. These innovative districts are paving the way and showing us how to make the necessary changes needed in our schools.”

“At a time when the new school year is beginning across the nation, there is no better time than now to speak out about the value of public education and bring to the forefront the outstanding work being done by our school districts,” said Daniel A. Domenech, Executive Director, AASA.

“It’s important to be imagining how our classrooms and schools can look and feel different in the next decade,” said Rose Else-Mitchell, Chief Learning Officer, Houghton Mifflin Harcourt. “We congratulate these change-makers for creating a culture of innovation and the conditions for future-focused learning designs in their school districts to accelerate student engagement, growth, and achievement.”

## INTRODUCTION

For years, the Parkway School District was known among the best in the state of Missouri. So much so that there was little need to peek under the hood to validate this perception. That is until federal and state regulations required district leaders to do so. When they did, what they discovered was not as impressive as they thought. They found some disconcerting indicators that revealed a failure to connect with entire segments of the district's population. They found a lack of consistent curriculum, disparate instructional practices, and a district that functioned like a series of separate entities working towards their own goals. Thanks to a sound strategic plan, sophisticated systems thinking, encouragement to take risks, and a commitment to shrewd resource allocation, this large district was able to unify around shared goals and unlock a *true* culture of innovation.

## THE CHALLENGE

The Parkway School District (Parkway) is a large district that serves 17,386 students across 18 elementary schools, five middle schools, four traditional high schools and an alternative choice high school program, and several preschool locations. The student body includes voluntary transfer students from St. Louis City who comprise 6.5% of the total enrollment. Approximately 20% of students qualify for free and reduced lunch. An incredible 59 languages are spoken in the Parkway district.

Parkway has long been known as a top district in the state of Missouri. Prior to 2011, Parkway had 13 Blue Ribbon Schools, annual recognition for high achievement, and clear financial reporting and audits.

Yet, regulatory changes—both at the federal and state levels—prompted district-wide introspection. The No Child Left Behind Act of 2001 revealed that the district's track record of student achievement applied to only about 70% to 80% of its students. By and large, the district discovered, they were struggling to improve learner outcomes with entire sectors of students. Further inspection revealed that by several indicators, Parkway was, in fact, a district with significant areas of need that required prompt and focused attention. They also noticed a lack of consistent curriculum and instructional practices across a district that functioned like four separate entities carved up by geography.

Around this time, Missouri's Department of Elementary and Secondary Education issued a requirement that all school districts have a strategic plan. Parkway did not have an active plan; by 2007, they were out of compliance with state requirements. The need for a strategic plan helped put structure and focus to conversations about how to reach all students with a meaningful education that prepared them for successful and fulfilling lives.

The district was determined not to write a strategic plan simply to meet a mandate. They were committed to producing one that was born from extensive stakeholder engagement; rooted in the reality of their district's circumstances and students' needs; pinned to students' futures; and highly likely to bear broad, productive, and positive change. In what they would call "Project Parkway," the district began seeking insights and feedback from a range of key stakeholders in the district and across the community.

Any district resident or employee was eligible to participate in Project Parkway. All told, over 400 volunteers contributed to the development of Parkway's mission, vision, and strategic plan. By 2011, the

district's first strategic plan, referred to as Project Parkway 1.0, was completed and ready for implementation to achieve the district's newly articulated mission:

*The mission of the Parkway School District is to ensure all students are capable, curious, and confident learners who understand and respond to the challenges of an ever-changing world.*

At large, the plan focused on meaningful learning, character development, efficient use of resources, employee wellness, recruitment and development of talented staff, and several learning targets and initiatives. Pivotal to the success of Project Parkway 1.0 was its thorough and consistent implementation across the district. The board no longer wanted to let the district function as a series of fragmented and separate entities, each working towards their own goals. They were aware that avoiding a repeat of that past would require deep knowledge of a systems approach. In 2011, the board named a new superintendent known for his systems thinking and expertise in strategic planning implementation.

Project Parkway 1.0 had a huge impact on broadening student achievement and working to realize the district's mission. Yet if Parkway has learned anything, it's that resting on one's laurels can allow success to lag and areas of weakness to exacerbate or go unnoticed.

For this reason, in 2015, the district conducted a listening tour with over 100 focus groups comprising of students, teachers, parents, community members, mayors, city administrators, religious leaders, civic and government leaders, and other key stakeholders. Each was asked to address seven questions/prompts:

- 1) Describe a great school.
- 2) Describe Parkway.
- 3) What are our points of pride?
- 4) If you were the superintendent, what would be your top priorities?
- 5) What obstacles could possibly prevent students from being successful in Parkway?
- 6) What do students need to navigate an ever-changing world?
- 7) Ideally, what should learning look like in 2028?

Insights from the listening tour had two significant impacts: 1) informing and shaping Project Parkway 2.0, an updated strategic plan intended to carry the district through continual improvement for the next five to 10 years; 2) the addition of the word "caring" to its mission statement:

*The mission of the Parkway School District is to ensure all students are capable, curious, caring and confident learners who understand and respond to the challenges of an ever-changing world.*

## **THE INNOVATION**

Parkway is best described as having a *true* culture of innovation from which multiple extensive and smaller innovations are constantly born. Many districts desire a culture of innovation, but most struggle to realize it fully. Parkway has done so by first nurturing an environment where risk-taking is encouraged and teachers trust they will not face repercussions if ideas fail. Secondly, they have built systems that facilitate meeting the goals of their mission and strategic plan, which optimizes the likelihood of success for promising innovations and also makes the process of identifying root causes of issues far easier.

Thirdly, they've protected their culture of innovation by being efficient, strategic, and just plain smart with finances and resource allocation.

### *Cultivating a True Culture of Innovation: Creating Safety and Trust Through Shared Goals*

Project Parkway 2.0 was approved by the Board of Education in the summer of 2016. See Appendix 1 for the full plan, which is framed by a mission, vision, learning principles, and commitments. The strategic plan outlines three goals, which follow, with corresponding measurable objectives expected by 2021, which appear in Appendix 1:

**Goal 1:** Ensure all students are learners who positively engage in an ever-changing world.

**Goal 2:** Attract, employ, develop and retain an exceptional staff dedicated to and representative of Parkway's diverse community.

**Goal 3:** Responsibly and efficiently allocate resources including finances, facilities, personnel and time.

The full strategic plan is specific and holistic. It is comprehensive but succinct enough to be easily read again and again and as needed. Just as Project Parkway 1.0, the updated plan was devised with the intention that any and all conversations, initiatives, and programs would be measured against it. Everyone at Parkway—from leaders to students—is familiar with the strategic plan. It is the North Star that guides every action taken and decision made across the district. It frames everything everyone in the district considers and does.

Leadership sees this devoted adherence to the mission and strategic plan as critical to its ability to create a true culture of innovation. In providing a framework for innovative ideas, the strategic plan actually liberates educators to feel full freedom to innovate towards shared goals. Instead of being asked to innovate in a vacuum, people at Parkway are all encouraged to experiment with new ideas towards the same goals. Leadership also holds the belief that failures are nothing more than lessons learned. When an innovative idea doesn't unfold as expected, those involved are encouraged to share what they learned with their colleagues. Thus, no attempt at innovation is in vain; each can shed more light on what does and does not work towards meeting shared goals.

Aligning all innovation and innovators around common goals also serves to remove egos from the equation. Everyone understands that they are on the same team rather than in competition with each other. When failure is not stigmatized, no one is seen as less than or superior to others. Instead, the Parkway team is eager to learn from each other's innovations and setbacks so that they, too, may become more effective in meeting shared goals and reaching all students.

This freedom of innovating within the strategic plan's goals, the support from leadership to experiment and take risks, and the trust amongst the entire team that failure is nothing more than a lesson learned has unlocked in Parkway a *true* culture of innovation.

Scores of noteworthy innovations have emerged from Parkway's culture. Among its most exciting is SPARK! Aligned directly to the strategic plan, SPARK! was the brain child of Parkway's Career and

Technical Education Coordinator. She sought a way to make exposure to vocational learning more flexible, individualized, and accessible to more students. The result is an in-district choice program for high school students to engage in dynamic, immersion-based learning experiences directly tied to the real world. High school juniors and seniors across the district can apply to one of the program's six strands: business, health services, teaching and learning, technology solutions, engineering, and bioscience. See Appendix 2 for more about all six SPARK! strands.

The district takes care not to select students based solely on academics; instead, they look for passion, how applicants portray their career interests, and what they hope to achieve through the SPARK! program. They also look closely at student passion, teacher recommendations and, as they ultimately select students, are mindful of equity and inclusion.

All high schools at Parkway have block scheduling. Those in the SPARK! program will spend two and a half hours three times a week in their SPARK! programming, which would be impossible without the support and time of local businesspeople, community members, and mentors. Each SPARK! strand was designed and developed in partnership with professionals in that field. From there, students are encouraged to adapt and alter their work to fit their interests and goals and based on feedback from mentors. Students work in collaboration with and under the mentorship of people with deep experience in the field of their strand. Based on the project at a given time, SPARK! students will work in teams; work individually; dialogue one-on-one with a mentor; pitch ideas; create products, services, or solutions; and participate in competitions.

Parkway leaders recognized that students in each SPARK! strand would need space tailored specifically to meet the needs of experiential learning and provide access, and necessary equipment, tools, and resources to promote innovative thinking. Therefore, district leaders knew they would need to get innovative and resourceful. All students in SPARK! work off-site in an authentic space befitting each strand. As an example, those in the business incubator strand work in a space that once held a Pottery Barn at a local mall (space rental is funded by the Parkway Alumni Association). The district facilitates transportation to SPARK! program locations and back to school as needed.

Ultimately, SPARK! is an example of how business, community, and public education can partner to produce experiential learning that educates the workforce of the future, especially in high-skill, high-demand jobs. Students are able to pursue a personal direction based on an understanding of their talents and interests while accessing a frequently iterated curriculum shaped by industry partners and based on the latest industry trends. All the while, robust networks of business and community partners remain available to support students.

### *Systematizing a True Culture of Innovation: Systems, Not People, at Root of Most Problems*

Amid the ongoing trial, error, and success of new innovations, the entire district continues to move in a unified direction rather than a hundred different ones. In addition to building culture, this serves a very intentional second purpose—it makes innovation systematic. Because innovations are pinned to a shared goal, it is easier to determine why they might have failed or why they might have succeeded. In turn, successes can be more readily replicated and failures more readily avoided. It also ensures experimentation and innovation are more efficient, in that time and resources will not be lost pursuing

innovations that do not serve shared goals. Lastly, it builds in accountability, as owners of an innovation must track progress towards meeting shared goals and make changes when progress lags.

The superintendent and his team (comprising of key district leaders, including Parkway's deputy superintendent; assistant superintendent of teaching, learning, and accountability; assistant superintendent of student services; chief financial officer; chief human resources officer; and chief communications officer) have had such enormous success building and maintaining successful systems because they understand that they have to be built with the end goal in mind. Systems that are not designed specifically to meet clearly articulated, advertised, and shared goals will inevitably and inadvertently thwart the meeting of those goals.

As an example: character education is a priority at Parkway. Relative to meeting character education objectives as laid out in the strategic plan, the superintendent saw specific breakdowns in systems that pertain to character education. A primary gap was a lack of a student services department to support student well-being. Without such a department, students were without a go-to resource to discuss or seek help for circumstances that might challenge their capacity to meet character learning expectations. With the establishment of the Student Services Department, there was greater coordination and enhancement within each of the student support roles.

Leadership also saw another gap in the system to support character education—one that many might miss or not think to consider. For the system to support character education, everyone in the system had to be on the same page in terms of what character education means, what it looks like personified, and what its goals were. To accomplish this, the Parkway team developed The Parkway Character Education Commitments. These commitments, which are adapted from the *11 Principles of Effective Character Education* from the Character Education Partnership, consist of nine descriptive statements that serve as pillars for a model character education program that are common throughout the district.

The Parkway Character Education Commitments:

1. The school community promotes core ethical and performance values.
2. The school community uses a comprehensive, intentional, and proactive approach to character education and development.
3. The school community provides students with opportunities to transfer the core ethical and performance values into real-world settings.
4. The development of student character will be embedded within a meaningful and challenging academic and character curriculum that respects all learners.
5. The school community fosters students' intrinsic motivation to exemplify the core ethical and performance values.
6. The school community creates a positive school climate.
7. The school and district staff contributes to an ethical learning community that shares responsibility and leadership for ongoing character education and adheres to the same core values that guide the students.

8. The school community effectively engages students, families, and community members as partners in the character-building effort and includes them in the leadership process.
9. The school community regularly assesses its culture and climate, the functioning of its staff as character educators, and the extent to which its students exhibit good character.

What leadership also understood was that if students were to buy into their character learning, all adults on campus were going to have to practice what they preached. Thus to fill a final gap in the character education system, the Parkway team created the ETHOS statement, which is the code of character by which all who work at Parkway abide. In turn, they can serve as role models of character to their students and contribute to and benefit from a professional, respectful, and productive workplace environment while safeguarding the district's reputation in the community.

The Parkway ETHOS Statement:

- We should strive to display courtesy, respect, integrity, and kindness in our work to ensure a positive environment for all members of the school district community.
- We should strive to maintain a positive image and a high level of professionalism.
- We should strive to place value in our behavior and take advantage of opportunities to positively influence the students, colleagues, and community members with whom we interact.
- We should strive to represent the district in a positive manner to promote our reputation.

The systemization of a coordinated student services department and the steps taken to point everyone in the district towards the same direction of character expectations paid off. In 2017, Parkway was named a National School District of Character, and nine of its schools were named National Schools of Character.

### *Protecting a True Culture of Innovation: Wise Financial Stewardship Creates Breathing Room for Innovation*

Innovation is only as possible as resources are available. Parkway leadership understands that without financial and resource efficiency, innovations in the name of student achievement and well-being could be curtailed or deprioritized. Yet they have seen firsthand the power of innovative thinking and action to offer a truly rigorous, individualized, and relevant learning program for all students. Thus, the district remains ever vigilant about how it uses funds and allocates resources to protect its capacity to innovate towards shared goals and on students' behalf. To take the eye off the financial ball even briefly can let small problems slip in that can waterfall into massive issues. From there, districts can find themselves in a hole so deep that nearly all time and resources are spent simply trying to recover from financial errors or bad practices.

At Parkway, the first step to making financial and resource decisions is to vet them against the strategic plan. From there, they are to be assessed for their efficiency—their cost/benefit or return on investment. In other words, leadership recognizes that sometimes the most efficient and responsible expenditure is the more expensive option. As an example, the district decided to purchase 30 compressed natural gas busses and added an additional 10 three years later. Compared to traditional busses, the upfront costs were higher. Yet because natural gas busses are less expensive to drive and run more efficiently, ultimately they are less expensive than owning and operating traditional gas busses. Thus, the natural gas bus option was the more efficient choice, financially and environmentally.



Wise financial stewardship at Parkway includes finding creative ways to support programs when funds might not be sufficiently available. Those at Parkway know they can only go to the taxpayer well so often. An example of creative resource generation is the Parkway sports marketing program. The district devised a program where local businesses and organizations can buy different levels of sports sponsorships—just as corporations can do in professional sports. At the title level, companies commit \$40,000 per year for marketing across the district. Title partners will see their logos on the scoreboard, in all sports programs, and in signage at district sports events. Revenues will support the district's sports and fine arts programs—programs they value and work never to let shrink or disappear due to funding constraints.

Parkway is one of four districts in Missouri to have earned the Standard and Poor's AAA bond rating. It has also consistently earned a Certificate of Excellence in Financial Reporting from ASBO International. Such accolades recognize the serious commitment at Parkway to model responsible financial stewardship. These feathers in the district's cap hold power when they engage the community for resources of any kind, in that partners trust that the district will use their donations efficiently and strategically to meet shared district goals. Parkway has again and again proven itself wise stewards not only of their own resources, but of the community's, as well.

## **THE IMPACT**

Parkway's *true* culture of innovation and the systems that support it have yielded several impressive results. Of its 17,386 students, more than 90% go to college or post-secondary options. Parkway ranks in the top 6% on the state report card for districts with more than 1,000 students. More than 50% of students participate in Advanced Placement (AP) or dual-credit courses.

Parkway's 28 schools and Early Childhood Center are renowned for their achievements, with 17 Blue Ribbon Awards from the U.S. Department of Education, four Green Ribbon Schools, and 19 Gold Star Awards from the State of Missouri. Parkway students' scores consistently rank among the top 10% in English, math, and science. All four traditional Parkway high schools were among country's Best High Schools by *U.S. News & World Report* in 2015. Ever more families are moving specifically so that their children can attend Parkway's excellent schools.

Educators are also moving so that they can work in the Parkway district. For the past three years, the *St. Louis Post-Dispatch* has selected the Parkway School District as a Top 10 Workplace in St. Louis based on employee surveys. The district is viewed as a desirable place to work and one of the best districts for educational growth and professional development. In interviews, staff report they feel valued and respected and that their ideas and opinions are always heard and taken seriously. They believe they can make a meaningful impact and that everyone is a strong part of the district's success.

## DISCUSSION QUESTIONS

1. As a district, are we unified by a realistic and measurable set of shared goals? Or are we fragmented, with different groups working towards their own goals? Do we have shared goals, but are there so many of them that people don't know where to focus?
2. Does everyone in the district—from staff to students to parents—and in the community know what our shared goals are? How can we better advertise our shared goals and our commitment to them? Do they serve as the North Star against which all conversations are framed and all decisions are made?
3. Do our systems facilitate or thwart the meeting of our goals? Are we too quick to blame people for problems rather than inspect our systems for ways systems might be impairing our plans?
4. What is our financial and resource allocation philosophy? What do we value and communicate when it comes to making resource decisions? Are we efficient or inefficient and thereby modeling effective or poor financial stewardship?

## **APPENDIX 1: PROJECT PARKWAY 2.0**

Project Parkway 2.0 approved by the Board of Education in summer of 2016

### **MISSION**

The mission of the Parkway School District is to ensure all students are capable, curious, caring and confident learners who understand and respond to the challenges of an ever-changing world.

### **VISION**

We succeed when each student and each graduate:

- transfers prior learning to new demands, in and out of school
- is fully prepared for future educational challenges
- is a creative, thoughtful, and effective problem solver
- is increasingly a self-directed, skilled, and persistent learner
- is a literate and critical consumer of information and ideas
- speaks articulately and listens effectively
- acts out of a strong sense of personal, social, and civic responsibility
- seeks to understand the views, values, and cultures of others
- works skillfully with others to achieve common goals
- pursues a personal direction based on individual talents and interests

### **LEARNING PRINCIPLES**

The conditions for optimal learning are observable in our classrooms and confirmed by educational research. As a learning institution, we want to ensure each student is successful in these areas:

- understands the purpose and outcomes of learning as well as the standards required for success
- transfers learning to new situations beyond the classroom and school
- makes meaning of content within helpful conceptual frameworks and multiple contexts
- uses feedback to improve products, performances, key skills and transfer of learning
- self-assesses and self-adjusts individual learning through reflection against rigorous goals
- constructs new knowledge by building on prior knowledge and activating earlier ideas
- tests ideas, takes intellectual risks, and learns from mistakes in pursuit of understanding
- experiences learning challenges that match individual abilities, needs, and interests
- realizes that the capacity to learn is not fixed; ability and understanding can always improve

### **COMMITMENTS**

To accomplish our mission, we will implement the following action plan:

- value the uniqueness of students and believe in their ability to learn and succeed
- engage students in meaningful learning through a guaranteed, viable district curriculum that is rigorous and relevant
- ensure students experience respectful learning environments that are safe, welcoming, and well-designed
- support the health, well-being, integrity, and character development of students

- maintain a culture of accountability in which all departments, schools, and programs collect and report relevant data on their progress toward mission-driven goals
- develop and support strong professional communities that utilize data, knowledge, experience, and research to improve, practice, and accomplish goals
- build positive relationships among students, families, staff, and the broader community
- responsibly and efficiently allocate resources including finances, facilities, personnel, and time
- cultivate the creativity and diversity of talents within all students
- recruit, employ, develop, and retain an exceptional staff dedicated to representing Parkway's diverse community

## **DISTRICT STRATEGIC PLAN**

Measurable objectives by 2021

### **GOAL 1**

All students are learners who positively engage in an ever-changing world.

#### **Measurable Objectives**

Each student will:

- ask and pursue meaningful questions
- transfer learning to new situations in and out of school
- seek to understand the views, values, and cultures of others
- set, adjust, and achieve goals to pursue a personal direction
- be kind and display concern for the well-being of self and others
- meet or demonstrate growth toward state and local academic benchmarks across all curriculum areas

### **GOAL 2**

Attract, employ, develop, and retain an exceptional staff dedicated to and representative of Parkway's diverse community.

#### **Measurable Objectives**

- Parkway will be competitive in the education industry.
- The diversity of our teachers, administrators, and supervisors will mirror that of our students in all departments, programs, and schools.
- All employees will be effective in their roles as measured by Parkway's evaluation model.
- Each staff member will engage in professional learning that positively impacts the achievement of Parkway's diverse student population.
- Employee retention will remain above the state and national average.

### **GOAL 3**

Responsibly and efficiently allocate resources, including finances, facilities, personnel, and time.

#### **Measurable Objectives**

- Each school, department, and program will maintain ethical and fiscally responsible practices to effectively accomplish mission.
- All personnel, time, and resources will be allocated responsibly and flexibly based on mission-related needs of students and the financial reality of the district.
- Each school, department, and program will successfully integrate environmentally, socially, and fiscally sustainable best practices into their area of focus.

## APPENDIX 2: THE SIX STRANDS OF SPARK!

- 1) **Business Incubator:** The SPARK! Incubator Center is located in what used to be a Pottery Barn at a local mall. SPARK! entrepreneurs validate their ideas, perfect a pitch, and seek resources and opportunities that foster a growth mindset through start-up launch endeavors. All students in the strand are expected create and launch their own business with the assistance, resources, and support from community and business professionals. Dual credit is available through Maryville University and Missouri State University.
- 2) **Pre-Professional Health Sciences Academy:** The Spark! Pre-Professional Health Sciences Academy is an engaging experience that examines the dynamic and diverse field of medicine and healthcare. During this experience, students will be exposed to the variety of opportunities and benefits of careers related to health sciences. Spark! Health Sciences participants expand upon principles of human physiology, develop fluency in basic medical terminology, formulate treatment plans for patients and engage in First Aid and CPR training. Students receive essential foundational knowledge based on industry demand, while also participating in clinical experiences across the continuum of care that may consist of job shadows, group projects, service learning and individualized mentorship. Diverse healthcare professionals serve as guest lecturers. Outside learning experiences involve site visits to a variety of medical and healthcare facilities. The Pre-Professional Health Sciences Academy meets at the Lindenwood Westport campus during first semester and at the Barnes-Jewish West County Hospital during the second semester. Articulated credit is available through St. Louis Community College.
- 3) **Teaching and Learning:** Spark! Teaching and Learning immerses students in teaching and learning. Students understand learning styles, teaching methodologies, technology integration, cultural responsiveness, and a focus on data-driven decision making in the schooling system. Students engage in a collaborative relationship between teachers, administrators, students, and families. This experience focuses on the general theory and practice of learning and teaching; the basic principles of educational psychology; the art of teaching; the planning and administration of educational activities; and the social foundations of education. Students experience the true essence of the teaching and learning process through observation, interaction, and teaching. Students may participate in Spark! for two consecutive years if their schedule allows. Spark! Teaching & Learning meets at Highcroft Ridge Elementary School in the Parkway School District. Dual credit is available through University of Missouri – St. Louis, Lindenwood University, and Maryville University.
- 4) **Technology Solutions:** Students in Spark! Technology Solutions discover a vast array of specialty areas available in technology careers where professionals utilize technology to solve

business problems and design products. Students are immersed in a professional environment tackling and solving real-world problems while working on client-defined projects and tasks. Students may be exposed to the following areas: software engineering, web development, operating systems, hardware technologies, network design/technologies, management information systems, media (print, film, web), or emerging technologies. Spark! Technology Solutions is located in the Cyber Fusion Center at Maryville University.

- 5) **Engineering:** Spark! Engineering is modeled after cutting-edge engineering schools like MIT School of Engineering, Olin College of Engineering, Stanford School of Engineering, and Purdue University. It is inspired by Project Lead the Way and endorsed by local universities. The course is designed for students who are interested in engineering and manufacturing fundamentals, entrepreneurship, and innovation. Students work closely with engineers and manufacturers using state-of-the-art tools and software to create and test 3D prototypes to solve complex problems. They also apply lean manufacturing processes that create value for customers and reduce waste in production. Students experience hands-on, active learning with full immersion in real-world projects sponsored by business partners. Students work in multi-disciplinary teams to provide innovative solutions to a company's real-world problems. Engineering projects are tailored to student interest in the fields of chemical, electrical, mechanical, civil, environmental, software/computer, architectural, advanced manufacturing, robotics, biological, and environmental studies. These students meet at Maryville University, where they can earn dual credit.
  
- 6) **Bioscience:** This program provides students with a passion for the biological sciences an opportunity to work with experts in the field. It is perfect for students whose interests lie with the micro or macro, plants, animals, or humans. Learning in this strand is based on research, inquiry, and project-based learning. Spark! Bioscience is located at BRDG Park. Dual credit is available through St. Louis Community College.

