Jasper County School District

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2013-2016
Technology Plan

July 1, 2013 through June 30, 2017

Changing the Focus:
From Teaching to Learning...
From the Technology to Its Application

Prepared by: The Technology Office

Submitted on behalf of the Jasper County (SC) School District.

Vashti K. Washington — Superintendent/Designee Signature — 3/4/2014 — Date

Technology Director Signature — 3/4/2014 — Date

February 2014

Table of Contents

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FOR USE BY THE SOUTH CAROLINA DEPARTMENT OF EDUCATION

This technology plan has been reviewed and certified by the South Carolina Department of Education. This certification will be effective for the term of this plan, not exceeding three years. This certification expires **June 30, 2016**.

SC Department of Education Designee Signature ______________________ Date ______________________

Executive Summary

The vision of the Jasper County School District is to change the educational focus of the district from teaching to student learning. All students are engaged in a challenging curriculum that is focused on inquiry-based, hands-on learning activities in which students take responsibility for their own educational success and in which students are proficient users of technology-based resources to support their own learning. Learning opportunities will be guided and facilitated by educators and support staff who are focused on student learning and who are proficient in the use of technology-based resources to promote and create student learning.

Online resources are essential components of daily teaching and learning. Online assessment of student performance is essential in providing timely and meaningful feedback during the teaching and learning process. Automated recordkeeping and reporting reduce administrative overhead and allow more time and resources to be devoted to learning and learners.

This technology plan outlines the District's commitment to re-building and maintaining its technology infrastructure to support the teaching and learning processes throughout the district. This plan also outlines the strategies for accessing and using online resources through that infrastructure in support of all teaching and learning processes. Those strategies include the identification of research-proven resources and the appropriate professional development for development and improvement of staff proficiency in the use of those resources.

The plan encompasses technology tools to be used for teaching, learning, and general operations. Those tools include workstations, laptops, tablets, networked printers/copiers, digital white boards and specialized applications for those boards, bring-your-own-device strategies, ubiquitous wireless access to online resources, and pathways to new technology tools as those emerge during the period covered by this technology plan.

With a solid infrastructure, important online resources can be accessed at each learning moment. Curriculum and instruction can integrate online resources to support learning objectives and standards. Learning opportunities can be personalized based on the immediate feedback provided by adaptive formative assessments, interim assessments, and summative assessments.

The management and support of the technology infrastructure and the implementation and support of online resources requires the following minimum staffing at the District level:

- Director of Information Technology
- Computer Technician II (minimum 2)
- Director of Instructional Technology (based in curriculum)
- Instructional Technology Coaches (based in content areas)
- Student Information System Coordinator
- Student Information System Data Specialists (minimum 1 per school site)

- Contracted services for a network engineer, network administrator, and other support services

The District's ongoing technology planning process will address the needs and concerns of a wide range of school and community stakeholders, including teachers, administrators, staff, parents, students, local business and industry, and the community at large.

Jasper County School District Technology Committee Membership

The Jasper County Technology Committee developed the 2013-2018 Jasper County School District Technology Plan. The technology committee was formed to ensure maximum stakeholder representation, including faculty and/or staff from each school, the media program, district administration, and occupational education.

The purpose of the Technology Committee is to write the district technology plan, evaluate the plan, and revise the plan annually or as needed.

District representation may include a representative from the following:

- School Administrator
- District Administrator
- Teacher
- Library-Media Specialist
- District Technology Department

Non-district representation may include representatives from the following:

- Technical College of the Low Country
- USC Beaufort Partnership
- Jasper County Chamber of Commerce
- Jasper County Business Community
- Parents and community members

Committee members:

Co Chairs:	
Director of Technology	Gary West
Principal	Robert Candillo
Committee Members:	
Superintendent	Vashti Washington
Director of Federal Programs	Marva Tigner
Testing and Accountability Coordinator	Eleanor Hazel
Work-Based Studies Coordinator	Cynthia Robino
Jasper County School Board Member	Debora Butler
Instructional Leader	Christy Thompson
Early Childhood Coordinator	La'Toya Thomas-Dixon
Public Information Officer	Shellie Murdaugh
Library Media Specialist	Euphemia Southall
Elementary Teacher	Chandra Brooks
Middle School Teacher	Ingrid Scott
High School Teacher	Amy Bassett
Community Member	TBD
Community Member	TBD
Community Member	TBD

A Vision for Technology

We envision using technology to advance a learning community where:

- All students are engaged in a challenging curriculum that is focused on inquiry-based, hands-on learning. Students take responsibility for their own educational success. Students are proficient users of technology-based resources.

- All teachers use technology-based resources to support learning across the curriculum. Through ongoing, comprehensive professional development, teachers acquire and demonstrate the knowledge and skills necessary to integrate technology-based resources into a challenging and interdisciplinary curriculum that addresses students' specific needs, developmental levels, and learning styles.

- All administrators use technology-based resources to support, develop, and enhance the total learning environment. They function as agents of change, advocates for the use of best practices, and facilitators of the move from passive to active learning.

- Administrative functions, including those performed by instructional staff, are fully automated, thereby allowing more of the school system's energy and resources to be focused on student learning.

- Parents and the community are actively engaged in nurturing the technology-based resources used in a comprehensive learning environment.

The schools become technology-rich environments where all students and staff have ready access to a full range of appropriate technology-based resources. Technology-based resources support and enhance the educational process and all learning activities.

Mission Statement

The Jasper County School District aspires to become the pride of the community where all students are empowered to excel to high academic standards guided by highly qualified professionals and dedicated citizens.

Transitions

In order to *change the focus from teaching to learning,* the following transitions must occur:

- Move from passive to active learning,
- Move from the transmittal of knowledge to the discovery of knowledge,
- Move from past oriented curricula to past/present/future oriented curricula,
- Move from a fragmentation-of-knowledge approach to an integration-of-knowledge approach.

Statement of Need

The Jasper County School District (JCSD) serves approximately 2850 students in four schools in an extremely high-poverty rural county. The district's free and reduced-price eligibility is 95.6%. Since 2003, the district and schools have earned absolute ratings of "unsatisfactory" or "below average" on its state-generated accountability report cards.

Schools	Grades	Students	F/R Lunch %
Hardeeville Elementary School (HES)	PK - 5	622	86.5%
Ridgeland Elementary School (RES)	PK - 5	922	97.6%
Hardeeville Ridgeland Middle School (HRMS)	6-8	594	89.2%
Ridgeland Hardeeville High School (RHHS)	9-12	711	87.3%

* As of 2/3/2014

Enrollment decreased by almost 12% at the start of the 2012-2013 school year due to the opening of a public charter school in the county. Student performance on state tests in the area of English Language Arts (ELA) has not improved rapidly enough to meet federal accountability standards. This is an indication that the District needs to strengthen instructional methodologies and delivery for the ELA curriculum. Student performance on state tests for Mathematics indicate similar patterns and needs.

While the District invested in teacher and student technology as well as the technology infrastructure when it built new schools in 2006, that technology has not been maintained and upgraded since. The network infrastructure is outdated and cannot support the use of online resources for instruction, research, or professional development. The teacher and student technology is outdated, as well.

With that said, the District has made an effort to provide digital white boards in all classrooms and other learning areas (media centers, etc.). There is a pressing need for professional development that will move the use of those resources beyond simple display units for non-interactive screens. There is a compelling need for comprehensive professional development in the use of technology-based resources in all areas of the curriculum and across all grade levels.

The District has faced extensive budget cuts over the last several years. Those cuts have eroded the District's ability to provide the level of support for technology integration that it would like to see all of it stakeholders experience. To date almost all of the funding for technology-based resources has come from federal and state grants. The District must make a strong commitment to providing human and financial resources to support and maintain the technology-based resources.

There is little doubt that the technology-based resources available in the Jasper County School District (JCSD) are under-used because those resources are unstable and inaccessible for an significant amount of time during each school day. Educators, administrators, and students are unable to count on the technology and, thus, cannot plan for the use of needed online and networked resources.

The problems that contribute to instability and inaccessibility fall into five basic areas:

1. **Bandwidth**: Because JCSD has not implemented specific requirements for full access to the state network, JCSD is limited to 10 mbps for access to the Internet and state network resources. See Strategy A, below, for plans to resolve this issue.
2. **Network Infrastructure and Security**: The JCSD internal network infrastructure lacks integration, cohesion, and structure, as evidenced by the condition of wiring closets, computer labs, and almost daily network component (switches, routers, and cabling) failures. The lack of true security within the system, its applications, and data is part of this problem, as well, with no systemic identification management or access control. See Strategy B, below, for plans to resolve this issue.
3. **Servers**: File servers and content servers are outdated and have multiple virtual servers running on processors that were not built to handle to traffic those processors are seeing. See Strategy C, below, for plans to resolve this issue.
4. **Electrical**: While the broad electrical issues are being handled by SCE&G, the stability of the network is affected almost daily by the lack of sufficient wiring and reliable uninterruptable power sources (UPSs) in the wiring closets and in other critical areas. See Strategy D, below, for plans to resolve this issue.
5. **Support for End-Point Devices**: Workstations in many (even a majority) of the labs in schools are not fully functional and, as such, cannot be used to support the teaching and learning goals of those schools. Teacher and student computers in classrooms have not been made operational in a systematic manner and are not available for record keeping, management, or learning activities. Other technology resources, like digital white boards, are not connected and, thus, not used as teaching and learning resources. See Strategy E, below, for plans to resolve this issue.

These five problem areas create operational and learning environments that lack important resources that can contribute to effective support for teaching and learning. Resolving these technical issues in the very near term will stabilize network and online resources so that JCSD can meet its operational and educational goals.

Additionally, the District recognizes that it needs a robust and stable wireless network if it is to implement technology-based resources for teachers and learners who want to use their own devices in the learning process.

The current technology network in JCSD is not sufficient to support ubiquitous wireless networking at this time. As indicated above, the current network is not sufficiently stable to support and secure wireless access by students and staff.

The existing wireless networks (JCSDGUEST and JCSDW) were designed and implemented as small networks to provide access to visitors who are doing work for the district and for administrators. Wireless access points are located only in the hallways and a few other designated areas. The current wireless signal does not penetrate the walls between the hallways and the classrooms because of the construction materials used in the construction of the buildings (pre-formed concrete slab with steel rebar reinforcement).

Placing additional wireless devices on the existing network has more potential to degrade the network than to enhance end-user access – because the infrastructure needed to

support heavy-use wireless does not exist. Building out a stable wireless network that can be accessed from every location on each campus must be a high priority for the District.

Scope of the Jasper County School District Technology Plan

The children of Jasper County School District must have access to the quality education needed to compete in an ever changing, highly competitive global economy. Recognizing the impact of technology on student achievement, the committee developed this plan to promote student-centered learning, student engagement, enhanced self-esteem, career opportunities, and equity of opportunity and options for students and county stakeholders.

Technology Infrastructure

In 2006, the Jasper County School District created a networking system within and between all schools and administrative offices. That network was the pipe through which online instructional, administrative, and operational resources flowed. The original network was reasonably reliable, robust, and had sufficient capacity to meet the needs of that time.

Demand for connectivity and bandwidth have increased dramatically since that original network was built. That infrastructure and the end-user devices on the network were not maintained and upgraded over the ensuing time period. Now, the existing infrastructure is insufficient to meet the needs of the teachers, learners, and administrators of the District.

This plan addresses the network infrastructure and the technology tools that will connect to that infrastructure. The following sections describe the work to be done in meeting the needs of the District's learners:

Goals:

1. The District network information system will be stable and reliable.
2. The District will provide sufficient human resources to manage, maintain, and sustain the District network information system.
3. The District will provide sufficient application software to support administrative and instructional services.

Objectives:

1. Create infrastructure and connectivity that facilitates the easy implementation, distribution and support of classroom and administrative technology resources.
2. Continue to place technology hardware in schools based on the Technology Integration Progress Gauge.
3. Upgrade the business applications.

Strategies:

1. Infrastructure and connectivity
   A. Continue to expand and improve the Internet Websites for Jasper County School District.
   B. Continue to expand WAN resources such as document publishing, discussion forums and other tools.

C. Aggressively install voice, video, and data cable to existing and new schools to build an equitable technology-rich environment of all students, teachers and administrators.

2. Technology Hardware
   A. Continue to review, revise, and implement a prioritization process based on the Technology Integration Progress Gauge.
   B. All schools will have 5 networked student computers per classroom.
   C. All media centers will have 10 networked student computers.
   D. Each school will have a networked computer lab accessible to all students, teachers, and community members.
3. Administrative Applications
   A. Implement a new set of administrative applications – finance, purchasing, food service, and payroll.
   B. Provide training on new administrative application software.
   C. Implement improved security and disaster recovery capabilities.

See the two papers in the last appendix for a full description of the networking and wireless needs of the District. Meeting those needs will create a network infrastructure on which curriculum, standards, teaching, and learning can be enhanced by online technology-based resources.

Integration of Technology-Based Resources into Curriculum, Teaching, Learning

The integration of technology-based resources into the learning process supports teaching and learning.

That integration is supported by:

- Computer-based training, learning, and testing.
- Computer-assisted Instruction
- Productivity and education applications
- Research opportunities
- Communication
- Career education and skills development

Integration of technology-based resources should support the current curriculum and learning standards. The following supports a curriculum aligned with S.C. Standards for Pre-K-12.

Goals:

1. Students will use technology in learning activities at age/grade-appropriate levels.
2. Teachers will integrate appropriate technology-based resources with current curriculum goals and learning standards.
3. The District will provide:
   A. Adequate hardware
   B. Software
   C. Staff development
   D. Technical support to implement technology integration into the curriculum.
   E. Organizational support at all levels to ensure the implementation of effective curriculum integration.

4. The District will encourage community involvement in utilization of technology-based resources for instruction and communication.

Objectives:

1. Students will:

A. demonstrate engagement in the use of grade/age appropriate technology during classroom instruction, technology fairs, and as a means of communication

B. provide documented evidence of higher-order thinking skills while utilizing technology applications, Computer Assisted Instruction, or web-based instructional activities, as evidenced in their technology portfolios.

C. Create technology generate products to demonstrate their acquisition of ISTE standards

2. Teachers will:
   A. Design and implement technology-based learning experiences that promote higher-level learning for students, while utilizing technology as a part of their authentic assessment, in ALL curriculum areas
   B. Participate in technology staff development to enhance their repertoire of technology skills used in instructional delivery
   C. Demonstrate the expected level of technology competency to become highly qualified in technology integration
   D. Complete the required teacher technology portfolio

3. Availability and Accessibility. The district will ensure that:
   A. Technology resources are available and are being used to support technology integration
   B. Technology funds have been allocated in such a way as to support technology integration in the classroom milieu
   C. All stakeholders have equitable access to technology.

4. Administrative Support. The district will ensure that:
   A. An organizational structure is developed and implemented to supports all aspects of technology integration.
   B. Building level instructional leadership evaluates, and enforces the integration of technology into teachers' instructional practices, and student engagement in the use of technology.
   C. Policies, procedures, and administrative rules are in place to support the equitable availability and use of technology.

5. Community Involvement.
   A. Community members will become actively engaged in the communication of the district's technology plan to all stake holders.
   B. Community members will support the school's integration of technology in teaching and learning, by attending technology fairs, and support the instructional program.

Strategies:

1. Students will demonstrate their technology skills during classroom instruction by producing students created products that require problem solving and working cooperatively.

2. Teachers will:
   A. Demonstrate their technology skills during instructional delivery by producing students centered lessons that require problem solving and working cooperatively.
   B. Develop and implement class schedules that facilitate equitable use of the technology available in their classrooms
   C. Create and implement classroom management strategies that foster the safe and appropriate use of technology in the classroom
   D. Use technology data bases to disaggregate, share, and communicate students', attendance, achievement, and accomplishments
   E. Communicate effectively with stakeholders using the available technology software and or applications.

3. The District will:
   A. Provide the financial resources (if available) to obtain the CAI software needed to meet the goals of the Technology Plan.
   B. Ensure that building level administrators guarantee the equitable availability of limited resources, such as computer labs, interactive whiteboards, digital cameras, etc.,
   C. Establish a process that enables the school library media program to provide equitable access to computers and limited resources, such as scanners, digital cameras (still and video), multimedia editors, etc.,
   D. Create an inventory control procedures to monitor the location, maintenance, and use of technology equipment

4. The District will:
   A. Provide resources and personnel for the maintenance of all network and hardware systems.
   B. Ensure that administrators at all levels will provide the necessary support to ensure the implement of all aspects of the district's technology plan
   C. Direct all building level administrators to create a school technology team-the team will develop and implement a school technology plan that facilitates equitable use of the technology on the school campus
   D. Evaluate classroom management strategies that foster the safe and appropriate use of technology in the classroom (To include appropriate use of cell phone to ensure that FERPA laws are not violated).
   E. Use technology data bases to disaggregate, share, and communicate teacher and students', achievement, and accomplishments

5. Community Involvement
   A. The District will offer the appropriate use of available technologies to the community for educational purposes.
   B. The District will establishment effective communications with the community. Technology will be the tool that fosters said communications.

Professional Development

Through professional development, administrators, teachers, media specialists, and support staff will obtain and utilize skills necessary to increase productivity, improve communications and information sharing, maintain, store, and access samples of student achievement and progress. All employees will use a variety of multi-media materials and applications to more effectively differentiate instruction to reach students with diverse learning styles.

Goal:

1. Administrators, teachers, media specialists, and support staff will participate in professional development as necessary to enhance technology skills, and the integration of technology into instructional, administrative, and evaluative processed.

Objectives:

1. Administrators, teachers, media specialists, and support staff will participate in district-wide technology training to develop their level of technology skills to meet appropriate ISTE standards.
2. All employees will integrate technology skills into their specific roles and responsibilities.

Strategies:

The district will use the ISTE teacher technology standards and Technology Standards for School Administrators (TSSA) in accordance with other state requirements

1. Professional development will be offered to meet the identified needs of all groups. (Timeline in appendices) .
2. School administrators will provide adequate release time for teachers to develop technology skills.
3. All groups will be provided necessary training to develop pedagogical techniques and strategies to facilitate learner-centered, project-based curricula that integrates the use of technology tools.

Community Engagement

Community engagement assumes a "reciprocal and collaborative relationship that draws in and includes members from the whole community" (Sun, 2000, p. 139) during planning, implementation, and evaluation phases. The goal is to build a sustainable system that benefits the entire community. An important first step in successful decision making and planning is bringing a representative group together to ensure the success and support of our technology efforts. Extended collaborations with and consortia of various organizations connect schools with a network of financial resources, service providers, and professional and curriculum development opportunities. Technology is the tool that supports efforts to reach a wide and varied audience and make natural partners for seeking funding and accomplishing projects. It benefits the entire community as it provides focus for the community and coordinates with the District Strategic Plan.

Goals:

1. The district's ongoing technology planning process will address the needs and concerns of a wide range of school and community stakeholders, including administrators, teachers, school staff, parents, students, local business and industry, and community service providers.
2. The district will operate and maintain its technology infrastructure in partnership with the local community.
3. The district will disseminate information on its wide area network that is useful and relevant to a diverse range of users, both within and outside the school-system network.
4. The district will provide opportunities for administrators, teachers, students, and community members to use technology resources at all district facilities, and in other locations throughout the community.

Objectives:

1. School/Community Needs and Concerns
   A. Identify the needs and concerns of community stakeholders.
2. School/Community Partnerships
   A. Partnerships will be established with interested community organizations.
   B. Partners will provide specialized support as appropriate.
3. School/Community Communications
   A. The District will establish open lines of communications using available telecommunications resources.
   B. The Community will have access to the district's website to obtain information on the schools, curriculum, and other programs.
   C. Parents and Students will have access to the schools' website to obtain information on course requirements and assignments.
4. School/Community Access
   A. Community members will have access to technologies available in the schools through the library/media center.
   B. The District will provide community access to workshops, open labs, and credit/non-credit college courses.

Strategies:

1. School/Community Needs and Concerns
    A. With assistance of the appropriate agencies, the District Director of Accountability will survey community stakeholders (including business/industry) to identify needs and concerns. The results of these surveys will be used to address communications and infrastructure strategies.
2. School/Community Partnerships
    A. Infrastructure Partnerships: The District will partner with local telecommunications agencies, cable, and other business/industry to increase access to affordable bandwidth to support growth and development within the county.
    B. The Director of Technology will work with local government, business/industry, and health care providers, in coordination with the South Carolina OIR (Office of Information Resources), to determine bandwidth needs, assess available providers/resources, and determine aggregate buying power. Working as a partnership, these entities will issue a RFP for necessary bandwidth to telco's and non-telco providers.
3. School/Community Communications
    A. The Public Information Officer will develop and continuously update the District web site to provide useful, comprehensive information which addresses the needs and concerns to students, parents, and the general public
4. School/Community Access
    A. The District will make a wide range of technology resources available to the community in inter-generational after school/weekend settings.
    B. The Instructional Technology Coordinator and the Director of Technology, in concert with each school, will identify and obtain resources to make technology such as Internet access, application software, and/or distance learning available to the public through workshops, open labs, college credit/non-credit courses, and annual technology fairs to educate the community on the technology in the district.

Assessment:

Bi-annual community surveys will be used to assess needs in the district.

Human Resources

The JCSD has evolved into a complex network. In order for this network to benefit all staff members, the network needs to be managed and maintained properly. In order to do this effectively there are a few key resource people that is necessary to have in place. These human resources will be responsible to ensure smooth operation of the network and individual classroom PC's.

The following human resources are essential to our district:

- Director of Information Technology
- Computer Technician II (minimum 2)
- Director of Instructional Technology (based in curriculum)
- Instructional Technology Coaches (based in content areas)
- Student Information System Coordinator
- Student Information System Data Specialists (minimum 1 per school site)
- Contracted services for a network engineer, network administrator, and other support services

Refer to appendices for full job descriptions.

Funding

The District will use a combination of district, state, federal, foundation/grant, and community resources to fund requirements of the Jasper County School District Technology Plan.

Twenty-five percent of available technology funding must be allocated to professional development in PreK-12 technology integration.

The true cost of ownership requires that the District must allocate necessary resources to maintain and update/upgrade the District network information system. The District should not rely on one-time grant funding resources.

Plan for New Equipment

At the beginning of the school year, each school will allocate 10% of its special revenue budgets for replacement and to upgrade technology equipment. In addition, the district technology head will allocate at least 10% of the district technology funds to the upgrade and/or replacement of equipment at the district level. If this amount is not needed at the district level it can either be saved for the next year, or equally divided among the schools for upgrades of their equipment.

Plan for Disposal of Outdated Equipment

Two or three times a year the Jasper County School District will contract with digital equipment recyclers to dispose of equipment that is either outdated or would not be cost effective to refurbish. This process will be lead by the Director of Technology.

Evaluation

Jasper County School District believes that evaluation is critical to the progress of its educational technology plan. Therefore, we will engage in a rigorous, summative and formative evaluation process as a part of the ongoing nature of our planning network. We will produce an evaluation report each year of our three-year implementation effort.

Evaluation means ways of examining the performance of the overall technology program as well as specific aspects of the program, such as professional development, technical assistance, and resources. Program evaluation usually addresses questions of accountability, quality, impact, sustainability and lessons learned.

- Accountability – Is the program doing what is supposed to do i.e., what was laid out in the technology plan? Is the money being spent well?
- Quality – How well are we implementing program activities and strategies? How good (useful, effective, well-received) are the program's services and products, such as professional development, technical assistance, resources, and infrastructure?
- Impact – Is the program making a difference? What effects are services and products having on teachers? Students? Administrators? The school climate? The community?
- Sustainability – What elements are or need to be in place for sustained levels of improvement in teaching and learning with technology to occur?
- Lessons learned – What lessons are we learning about the processes and factors that support or inhibit the accomplishment of objectives.
- Improvement - How are we using the results of the evaluation to improve the teaching and learning process and student achievement?

APPENDICES

APPENDIX A

ISTE Education Technology Standards

https://www.iste.org/standards

The ISTE Standards family

ISTE Standards for Students (ISTE Standards•S): The standards for evaluating the skills and knowledge students need to learn effectively and live productively in an increasingly global and digital world (http://www.iste.org/standards/standards-for-students)

ISTE Standards for Teachers (ISTE Standards•T): The standards for evaluating the skills and knowledge educators need to teach, work and learn in an increasingly connected global and digital society (http://www.iste.org/standards/standards-for-teachers)

ISTE Standards for Administrators (ISTE Standards•A): The standards for evaluating the skills and knowledge school administrators and leaders need to support digital age learning, implement technology and transform the instruction landscape (http://www.iste.org/standards/standards-for-administrators)

ISTE Standards for Coaches (ISTE Standards•C): The skills and knowledge technology coaches need to support peers in becoming digital educators (http://www.iste.org/standards/standards-for-coaches)

ISTE Standards for Computer Science Educators (ISTE Standards•CSE): The skills and knowledge that computer science educators need to reach, inspire and teach students in computing (http://www.iste.org/standards/standards-for-computer-science-educators)

ISTE Standards resources

ISTE offers a host of resources to help teachers and administrators learn about the ISTE Standards and how to use them.

- Essential Conditions for the ISTE Standards
  https://www.iste.org/standards/essential-conditions
- ISTE Standards Implementation Wiki
  http://nets-implementation.iste.wikispaces.net/
- ISTE Standards Leadership Academy
  http://www.iste.org/store/online-courses
- Learning Labs for the Elementary Classroom
  http://www.iste.org/store/online-courses
- Common Core State Standards
  https://www.iste.org/standards/common-core

APPENDIX B

PROFESSIONAL DEVELOPMENT TIMELINE

Timeline

Our district timeline contains the activities, the person(s) responsible, and the timeframe for a one-year planning horizon with an annual update cycle.

Professional Development Offerings

The following technology integration professional development opportunities are available to our team teachers/media specialists:

A. State and National Conferences. Various Content and Technological topics. Annually
B. Leadership/Coach training Train-the-Trainer. Monthly.
C. South Carolina Online Professional Development (SCOPD). Technology Integration Courses. As needed
D. Technology Feast. Various computer skills and ideas. Fall of each year.
E. Promethean Board Training for all end users – Monthly or as Needed

Activity	**Person(s) Responsible**	**When**
District Technology Committee Meeting: • Evaluation of the implementation of the district technology plan • Update the plan for the upcoming school year • Share results with stakeholders	Technology Committee	Spring each year
Evaluate all certificated staff members	Instructional Technology Coordinator & Technology Coach	Beginning of each school year.
Create School Technology Team	Building Level Administrator & Technology Coach	June – August
Develop and implement School Technology Plan	Building Level Administrator & Building Level Tech Team	June
Develop and implement School Technology Staff Development Plan	Building Level Administrator & Building Level Tech Team	June
Deliver continuous professional development on technology integration	Technology Team Leaders/Coach	Ongoing
Evaluate teacher lesson plans for technology integration.	Technology Coach	Continuous Beginning August of each school year

Profession Development Activities

Activities	Description
Professional Development/Training	Provide on-going training to increase teachers' computer competencies ☐ Instructional leaders will support teachers in their efforts to integrate technology by sharing strategies, developing units, observing lessons, and providing feedback ☐ One-on-one training will provided by the Tech Team Leader; District Instructional Coach/District Instructional Technology Coordinator
Decrease the Number of Equipment Malfunctions	☐ Maintain Technicians that make up the district's technology support team to a school site. They will be **more** accessible and troubleshoot as a proactive measure to help ensure that the equipment is operational for teachers, students, and administrators.
Implementation of Technology Integration	☐ All Tech Teams will implement technology integration into the adopted curriculum. All revised instructional units will be submitted via e-portfolio no later than May of each school year. ☐ Team will revise **and** implement an instructional unit that has been enhance through the use of technology. ☐ Teams will submit a reflection on how the units were embedded with technology, their experiences implementing the units, and samples of student work. These will be included in the teachers digital portfolios ☐ Administrators will also develop digital portfolios in keeping with the state's technology requirements for administrators.
Provide professional development in the use of the e-portfolio and online professional development system	☐ Develop and implement a building level school technology professional development plan that addresses the areas of weakness for teachers on each campus. ☐ Implement the professional development plan.
School sites compliance with technology vision	☐ Director of Operations will collaborate with the Director of Curriculum, the District Technology Committee and

Activities	Description
	other consultants to ensure that the new facilities are equipped to meet the district's vision for technology integration.
On-going Professional Development	☐ Provide quality professional development in the use of up to date technology. ☐ Ensure that teachers, administrators, and students are utilizing the latest technology for the enhancement of learning and communication.
State's Technology Plan	☐ The Director or Curriculum and the Coordinator of Instructional will ensure that the district, building level administrators, teachers, staff, and students is in compliance with the state's technology plan.

APPENDIX C

JOB DESCRIPTIONS

JOB DESCRIPTION

JOB TITLE: Department of Technology Director

REPORTS TO: Superintendent

MINIMUM TRAINING AND EXPERIENCE:

1. Requires a Master's degree in computer science
2. Supplemented by six to nine years of experience in computer technology management, including experience managing computer networks,
3. Or an equivalent combination of education, training and experience that provides the required knowledge, skills and abilities.
4. Must possess a valid state driver's license.

GENERAL STATEMENT OF JOB

Under limited supervision, plans, directs and supervises the implementation, integration, administration and utilization of technology within all facets of the District's education system; directs the support of technology for instruction and District management; administers grants related to technology, and performs related professional, administrative and supervisory work as required.

SPECIFIC DUTIES AND RESPONSIBILITIES ESSENTIAL JOB FUNCTIONS

Provides professional leadership and technical expertise in planning, developing and implementing technology support for all functions throughout the District.

Ensures department compliance with all applicable policies, procedures, laws and regulations, and standards of quality and safety.

Develops standards by which the functions of the Technology Division are to be held accountable and provides regular updates on the progress toward those standards.

Supervises duties of assigned professional, technical and support staff; supervisory duties include instructing; assigning, reviewing and planning work of others; selecting new employees; maintaining standards; coordinating activities; allocating personnel; acting on employee problems; recommending employee discipline and discharge as appropriate.

Reviews the work of subordinates for completeness and accuracy; evaluates and makes recommendations as appropriate; offers advice and assistance as needed.

Provides for adequate staff training and development opportunities.

Develops and directs the implementation of the District's technology plan; coordinates the development and implementation of school technology plans.

Develops and implements policies and procedures for the efficient and effective management of technology systems throughout the District.

Develops and manages the department's annual operating and capital budgets; approves and monitors expenditures and prepares related financial reports.

Seeks, secures and administers grant funds to support specific technology projects and programs.

Implements the integration of technology within all facets of District administration and operations. Ensures the provision of effective and adequate technology training and user support for District staff.

Directs the purchase, installation, support, networking, maintenance and repair of technological equipment and systems.

Researches, reviews and approves technology purchases to ensure compatibility with existing District policies and systems; prepares and manages contracts with vendors and service providers.

Supervises in-house maintenance of District local area networks, computers, printers and software systems.

Supports District-wide database and electronic communication of data to all sites, as well as electronic download / upload of state mandated data; develops related communications materials and/or processes.

Coordinates the technology-related activities of technology teacher leaders, elementary computer lab staff, business education teachers, and media specialists.

Directs the introduction and expansion of telecommunications for instruction and management.

Coordinates the development and management of the district's website.

Coordinates department activities and functions with those of other District divisions, departments and outside agencies as appropriate; communicates with District staff to determine technology requirements.

Receives and responds to inquiries, concerns and complaints regarding technology issues, policies and procedures and department services.

Represents the department and District at various meetings as appropriate.

Prepares and/or processes budget documents, financial reports and analyses, technology plans, technical designs, instructional / training materials, grant applications, meeting agendas, schedules, performance evaluations, memos, correspondence, etc.

Operates a variety of equipment such as computers, printers, network equipment, modems, peripherals, copier, calculator, telephone, typewriter, etc.; uses clerical, copier, computer supplies.

Interacts and communicates with various groups and individuals such as the Superintendent, subordinates, other District administrators and staff, school administrators and staff, Board of Trustees, State Department of Education personnel, various committees, government agencies, vendors / service providers, and the general public.

Keeps abreast of technological advances and their potential application to District operations.

Attends training, seminars and conferences, etc., as necessary to maintain and enhance job knowledge and skills.

ADDITIONAL JOB FUNCTIONS

Teaches professional development workshops and leads related activities as appropriate. Assists other departments in developing technology-related presentations and workshops.

Performs routine administrative/office tasks as required, including but not limited to preparing reports and correspondence, copying and filing documents, answering the telephone, sending and receiving faxes, entering and retrieving computer data, etc.

Performs related duties as required.

MINIMUM QUALIFICATIONS OR STANDARDS REQUIRED TO PERFORM ESSENTIAL JOB FUNCTIONS

Physical Requirements: Requires light work that involves walking or standing some of the time and involves exerting up to 20 pounds of force on a recurring basis, or skill, adeptness and speed in the use of fingers, hands or limbs on repetitive operation of electronic office machines within moderate tolerances or limits of accuracy.

Data Conception: Requires the ability to compare and/or judge the readily observable, functional, structural, or compositional characteristics (whether similar to or divergent from obvious standards) of data, people, or things.

Interpersonal Communications: Requires the ability of speaking and/or signaling people to convey or exchange information. Includes the giving of assignments and instructions to subordinates and co-workers. Includes the receiving of information and instructions from supervisor.

Language Ability: Requires the ability to read a variety of financial, administrative, technical and statistical documents and reports. Requires the ability to prepare various types of reports and documents with the proper format, punctuation, spelling and grammar, using all parts of speech. Has the ability to speak before audience with poise, voice control and confidence.

Intelligence: Requires the ability to apply principles of logical thinking to define problems, collect data, establish facts and draw valid conclusions; to deal with several abstract and concrete variables. Requires the ability to apply influence systems in managing a staff; to

learn and understand relatively complex principles and techniques; to make independent judgments in absence of supervision; to acquire knowledge of topics related to primary occupation. Must have the ability to comprehend and interpret received information.

Verbal Aptitude: Requires the ability to record and deliver information, to explain procedures, to follow and give verbal and written instructions; to counsel and teach employees. Must be able to communicate effectively and efficiently in a variety of technical and/or professional languages including computer science, network administration, information / communication technologies, technology education, budgeting, grant administration, personnel, etc.

Numerical Aptitude: Requires the ability to add and subtract totals, to multiply and divide, to use mathematical formulas, to determine percentages and decimals and to determine time. Must be able to use advanced applications of fractions, percentages, ratio and proportion.

Form/Spatial Aptitude: Requires the ability to inspect items for proper length, width, and shape.

Motor Coordination: Requires the ability to coordinate hands and eyes in using office equipment.

Manual Dexterity: Requires the ability to handle a variety of items, office equipment, control knobs, switches, etc. Must have minimal levels of eye/hand/foot coordination.

Color Discrimination: Requires the ability to differentiate colors and shades of color.

Interpersonal Temperament: Requires the ability to deal with people beyond giving and receiving instructions. Must be adaptable to performing under stress when confronted with emergency situations or tight deadlines. The worker may be subject to tension as a regular, consistent part of the job.

Physical Communications: Requires the ability to talk and hear: (talking: expressing or exchanging ideas by means of spoken words; hearing: perceiving nature of sounds by ear).

PERFORMANCE INDICATORS

Knowledge of Job: Has comprehensive knowledge of the methods, procedures and policies of the District as they pertain to the performance of duties of the Department of Technology/Director. Has considerable knowledge of the functions and interrelationships of the District and other governmental agencies. Is knowledgeable in the laws, ordinances, standards and regulations pertaining to the specific duties and responsibilities of the position; has knowledge of all state and District mandates pertaining to computerized systems. Is able to ensure department compliance with all laws and regulations and control the activities of the department through effective supervision of staff. Has knowledge in the areas of computer / network technology and maintenance, information systems management, project management, budgeting, etc. Is able to provide leadership in planning, developing and implementing effective information systems and modern technology for District-wide instruction and management. Is able to effectively support technology education efforts through classroom and laboratory instruction, special training and workshops. Is able to ensure the provision of

professional, efficient user support and assistance. Is able to effectively determine appropriate hardware, software and network requirements for various District operations, and to coordinate the implementation and integration of new equipment and systems. Has knowledge of the standard tools, materials and practices of the industry. Has skill in the care and use of required tools and equipment. Has knowledge of the occupational hazards and safety precautions of the industry. Is able to make sound, educated decisions. Knows how to plan, organize and direct a professional / technical staff. Knows how to apply supervisory and managerial concepts and principles; has knowledge of administrative principles involved in developing, directing and supervising various programs and related activities. Has the ability to offer instruction and advice to subordinates regarding departmental policies, methods and regulations. Is able to perform employee evaluations and to make recommendations based on results. Has the ability to offer training and assistance to co-workers and employees of other departments as required. Has the ability to use independent judgment and discretion in supervising various programs including the handling of emergency situations, determining procedures, setting priorities, setting schedules, maintaining standards, planning for future needs and resolving problems. Has the ability to plan and develop daily, short- and long-term goals related to District purposes. Is able to take the initiative to complete the duties of the position without the need of direct supervision. Has the ability to plan, organize and prioritize daily assignments and work activities. Has good organizational, technical and human relations skills. Has the ability to learn and utilize new skills and information to improve job performance and efficiency. Has knowledge of proper English usage, punctuation, spelling and grammar. Has knowledge of modern office practices and technology. Has the mathematical ability to handle required calculations. Is able to compile, organize and utilize various financial information necessary in the preparation of department budgets, and knows how to prepare and monitor the budgets. Is able to read and interpret complex materials pertaining to the responsibilities of the job. Is able to assemble and analyze information and make written reports and records in a concise, clear and effective manner. Has comprehensive knowledge of the terminology and various professional languages used within the department. Knows how to maintain effective relationships with personnel of other departments, professionals and members of the public through contact and cooperation. Knows how to react calmly and quickly in emergency situations.

Quality of Work: Maintains high standards of accuracy in exercising duties and responsibilities. Exercises immediate remedial action to correct any quality deficiencies that occur in areas of responsibility. Maintains high quality communication and interaction with internal and external entities with whom the position interacts.

Quantity of Work: Performs described Essential Functions and related assignments efficiently and effectively in order to produce quantity of work which consistently meets established standards and expectations.

Dependability: Assumes responsibility for completing assigned work. Completes assigned work within deadlines in accordance with directives, policy, standards and prescribed procedures. Maintains accountability for assigned responsibilities in the technical, human and conceptual areas.

Attendance: Attends and remains at work regularly and adheres to policies and procedures regarding absenteeism and tardiness. Provides adequate notice to higher management with respect to vacation time and leave requests.

Initiative and Enthusiasm: Maintains an enthusiastic, self-reliant and self-starting approach to meet job responsibilities and accountabilities. Strives to anticipate work to be accomplished, and initiates proper and acceptable action for the completion of work with a minimum of supervision and instruction.

Judgment: Exercises analytical judgment in areas of responsibility. Identifies issues or situations as they occur and specifies decision objectives. Identifies or assists in identifying alternative solutions to issues or situations. Implements decisions in accordance with prescribed and effective policies and procedures and with a minimum of errors. Seeks expert or experienced advice where appropriate and researches issues, situations and alternatives before exercising judgment.

Cooperation: Accepts supervisory instruction and direction and strives to meet the goals and objectives of same. Questions such instruction and direction when clarification of results or consequences are justified, i.e., poor communications, variance with established policies or procedures, etc. Offers suggestions and recommendations to encourage and improve cooperation intra- and inter-departmentally.

Relationships with Others: Shares knowledge with managers, supervisors and co-workers for mutual benefit. Contributes to maintaining high morale among all employees. Develops and maintains cooperative and courteous relationships inter- and intra-departmentally, and with external entities with whom the position interacts. Tactfully and effectively handles requests, suggestions and complaints in order to establish and maintain good will. Emphasizes the importance of maintaining a positive image.

Coordination of Work: Plans and organizes daily work routine. Establishes priorities for the completion of work in accordance with sound time-management methodology. Avoids duplication of effort. Estimates expected time of completion of work elements and establishes a personal schedule accordingly. Attends required meetings, planning sessions and discussions on time. Implements work activity in accordance with priorities and estimated schedules.

Safety and Housekeeping: Adheres to all established safety and housekeeping standards. Ensures such standards are not violated.

Planning: Plans, coordinates and uses information effectively to enhance activities and production. Knows and understands expectations regarding such activities and works to ensure such expectations are met. Develops and formulates ways, means and timing to achieve established goals and objectives. Effectively and efficiently organizes, arranges and allocates manpower, financial and other designated resources to achieve such goals and objectives.

Organizing: Efficiently organizes own work and that of subordinate staff. Ensures that personnel understand what results are expected of them, and that each is regularly and appropriately informed of all matters affecting or of concern to them.

Staffing: Works with upper management, where appropriate, to select and recommend employment of qualified personnel. Personally directs the development and training of personnel under charge, ensuring their proper induction, orientation and training.

Leading: Provides a work environment which encourages clear and open communications. Has a clear and comprehensive understanding of the principles of effective leadership and how such principles are to be applied. Provides adequate feedback to personnel under charge concerning their performance. Commends and rewards personnel under charge for outstanding performance, and takes timely and appropriate disciplinary action as necessary. Exercises enthusiasm in influencing and guiding others toward achievement of established goals and objectives.

Controlling: Provides a work environment which is orderly and controlled. Coordinates, audits, and controls manpower and financial resources efficiently and effectively. Coordinates, audits, and controls the utilization of materials and equipment efficiently and effectively. Has a clear and comprehensive understanding of established standards, methods and procedures.

Delegating: Assigns duties as necessary and/or appropriate to meet goals, enhance abilities of personnel under charge, build their confidence and assist them in personal growth. Has confidence in personnel under charge to meet new or additional expectations.

Decision Making: Exercises discretion and judgment in developing and implementing courses of action affecting functions under charge. Recognizes when a particular policy, procedure or strategy does not foster the desired result, and moves decisively and explicitly to develop and implement alternatives.

Creativity: Regularly seeks new and improved methodologies, policies and procedures for enhancing the effectiveness of functions under charge. Employs imagination and creativity in the application of duties and responsibilities. Is not adverse to change that supports achievement of goals and objectives.

Human Relations: Strives to develop and maintain excellent rapport with personnel under charge. Listens to and considers their suggestions and complaints, and responds appropriately. Establishes a work environment to promote and maintain mutual respect.

Policy Implementation: Has a clear and comprehensive understanding of policies regarding functions under charge and the function of the organization. Adheres to policies in the discharge of duties and responsibilities, and ensures the same from personnel under charge.

Policy Formulation: Maintains awareness of changes in operating philosophies and policies, and routinely reviews policies to ensure any changes in philosophy or practice are appropriately incorporated into functions under charge. Recognizes and understands the relationship between operating policies and practices and morale and performance. Strives to ensure that established policies enhance same.

TERMS OF EMPLOYMENT: Two hundred forty (240) days. Salary and work year to be established by board.

EVALUATION: Performance of this job will be evaluated in accordance with Provisions of the School
Board's Policy on Evaluation of Personnel.

Reviewed and agreed by: _____ **Date:** _____
(Employee's Signature)

Approved by: _____ **Date:** _____
(Supervisor/Principal's Signature)

DISCLAIMER: This job description is not an employment agreement or contract. Management has the exclusive right to alter this job description at any time without notice.

JOB DESCRIPTION

Job Title: **Computer Technician I**

Immediate Supervisor: The person(s) in this position is directly responsible to the Director of Technology.

Terms of Employment: 240 days.

Job Summary:
The person(s) in this position will

- Be responsible for the prompt and efficient diagnosis and repair of all District-supported computer hardware and associated peripherals for assigned locations;
- Provide installation, diagnosis and resolution of all approved client software;
- Assist in the diagnosis and resolution of network hardware and client issues;
- Understand and assist in the installation of all District-supported and approved network premise wiring for Ethernet and wireless access points.

Job Qualifications:
The person(s) in this position will be required to have the following:

1. Minimum Associate Degree or higher;
2. Minimum of three (3) years of field and bench work in areas described in the Job Summary, above;
3. Well-developed communication and human relation skills when dealing with technical and non-technical end users/vendors;
4. A+ certification (IT Technician) with experience in the area of computer hardware and Microsoft Windows support;
5. In-depth working knowledge of various software applications and operating systems;
6. Network+ certification and experience with Microsoft Windows, especially in the areas of workstation configurations;
7. Ability to read, interpret, and understand schematics, troubleshooting flow charts, and manuals;
8. An understanding of network premise wiring and wiring codes;
9. Ability to communicate and work well in a team environment with co-workers and end users; and
10. Have and maintain a current valid South Carolina (or other state's) driver's license.

Job Responsibilities:
1. Diagnose, repair, and maintain all District-supported and approved computer systems and associated peripherals for assigned locations. Obtain needed parts and supplies, from approved vendor list or district inventories, in order to perform above mentioned diagnosis and repair work. Maintain a running stock of needed parts. Maintain an accurate record, using service tickets, of equipment repaired along with a detailed record of location, cost, and time involved in all repairs.

2. Provide installation, diagnosis, and resolution for a wide range of District-supported software applications, multimedia applications, and operating systems in the areas of

administration, instruction, and media centers. Have an in-depth knowledge and understanding, with proven efficiency, of various software and multimedia applications, computer platforms, and their operating systems.

3. Provide assistance in the diagnosis and resolution of various network hardware-related issues. Have experience with various network clients and protocols. Have the ability to install and configure various computer systems in a District-approved networked environment.

4. Understand and follow all District operations, policies and procedures. Keep supervisor advised of any potential hardware or software problems or conflicts that may have an effect district-wide. Act in a professional manner at all times.

5. Lift and successfully move up to thirty pounds.

6. Perform all other tasks as assigned by the immediate supervisor.

JOB DESCRIPTION

COMPUTER TECHNICIAN II

SCOPE OF RESPONSIBILITY:

- The Technician is directly responsible for the ongoing support of appropriate information and communication technologies for the schools within the Jasper County School District.

COMPETENCIES REQUIRED:

- Must be familiar with current and emerging information and communication technologies as they relate to the needs of the schools within the Jasper County School District;
- Must be able to work effectively as part of a team, communicate effectively with other administrative departments, school administrators, teachers, and students, as required;
- Must be able to troubleshoot and repair information and communication technologies as required to maintain effective use of those technologies within the school environment;
- Must demonstrate active engagement in ongoing professional development; and
- Must demonstrate competency in and knowledge of specific technologies as required to fulfil the requirements of this position.

QUALIFICATIONS:

- Post-secondary education in a relevant technical field;
- Current A+, Novell 5.x CNA certification; and MCSE certification desired
- A minimum of three years experience in technical service and support.

JOB SPECIFIC COMPONENTS:

The Technician will perform such activities as necessary to fulfil the requirements of the position, including, but not limited to:

- Installing, configuring, troubleshooting, and repairing network and telephone cabling, and connectivity hardware;
- Installing, configuring, troubleshooting, and repairing computer and telecommunications hardware;
- Installing, configuring, and troubleshooting software;
- Developing and maintaining sufficient knowledge of the information and communication technologies used within the Jasper County School District in order to provide quality and timely technical support to the users of those technologies; and
- Acting both proactively and reactively to define and resolve technical problems, and to recognize and implement opportunities for technical improvements.

SALARY AND JOB BENEFITS:

- The Computer Technician II position is a full time position.
- Salary will be competitive based upon experience and qualifications.

REPORTS TO: Director of Technology

TERMS OF EMPLOYMENT: Two hundred forty (240) days. Salary and work year to be established by the board.

EVALUATION: Performance of this job will be evaluated in accordance with provisions of the Board's Policy on Evaluation of District Office Personnel

Job Description

Student Information System Coordinator

JOB TITLE: Student Information System Coordinator

REPORTS TO: Director of Technology

DEPARTMENT: Office of Technology

WORK HOURS: 8:00 am – 5:00 pm

OVERTIME STATUS: Non-Exempt

POSITION SUMMARY:

The Student Information System Coordinator coordinates with district department heads and superintendent to ensure all powerschool data requests and information are disseminated accurately. At the time this job description was written, the local student information system is PowerSchool.

ESSENTIAL JOB FUNCTIONS

1. Must be familiar with current and emerging information and communication technologies as they relate to the needs of the schools within the Jasper County School District.
2. Must be able to work effectively as part of a team, communicate effectively with other administrative departments, school administrators, teachers, and students, as required.
3. Coordinates with Principals, Guidance and SASI Clerks to ensure that all data entry is completed accurately and in a timely fashion. Serves as a liaison between district and school level program administrators to ensure accurate, thorough, and effective use of data.
4. Must demonstrate active engagement in ongoing professional development; and
5. Must demonstrate competency in and knowledge of specific technologies as required to fulfil the requirements of this position.
6. Provides data extracts for district instructional software, testing, and grant development. Responsible for transmitting all data reports to the SDE. Serves as the primary data contact person for state agencies dealing with the District.
7. Updates the SASI program to maintain the latest versions of all modules/components and SDE changes.
8. Supports and troubleshoots all aspects of the Powerschool program including modules such as PowerTeacher.
9. Performs all necessary activities related to data extraction and reporting for district, state and federal accountability and funding requirements, review, verification and extraction of student attendance records

MINIMUM QUALIFICATIONS/JOB REQUIREMENTS:

1. Post-secondary education in a relevant technical field.
2. A minimum of four years experience in technical service and support.

TERMS OF EMPLOYMENT:

Two hundred forty (240) days. Salary and work year to be established by the board.

SALARY AND JOB BENEFITS:

1. The Powerschool Coordinator position is a full time position.
2. Salary will be competitive based upon experience and qualifications.

EVALUATION:

Performance of this job will be evaluated annually in accordance with provisions of the Board's Policy on Evaluation of support Service Personnel.

The above statements are intended to describe the general nature and level of work being performed by people assigned to this classification. It is not intended and should not be construed as an exhaustive list of all responsibilities, duties and skills required of personnel so classified.

JOB DESCRIPTION

INSTRUCTIONAL TECHNOLOGY DIRECTOR

This job reports to Director of Teaching, Learning and Assessment

Essential Functions

Communicates with parents, employees, administrators and outside organizations for the purpose of providing administrative support, enhancing program awareness and assisting with program implementation and conflict resolution.

- Coordinates the design, planning, support, professional development and implementation of technology use in teaching, learning and District curriculum for the purpose of improving student learning in all subject areas.
- Develops and directs the development and interpretation of program policy and procedures for the purpose of establishing guidelines needed to effectively and efficiently meet district program goals while adhering to all relevant regulations and guidelines.
- Develops and manages program related budget(s) for the purpose of ensuring that software, hardware and personnel are available to meet program, school site and District needs and objectives.
- Directs program assessments for the purpose of ensuring that technology standards for teachers and students meet program goals and District guidelines.
- Directs, analyzes and evaluates in the identification of a variety of program related data (e.g. student assessments, teacher assessments, emerging technology trends, requested applications, systems and hardware, etc.) for the purpose of ensuring availability of technology resources needed to meet student, school site and District objectives while adhering to budget limitations.
- Identifies, develops and reports program related assessment results for the purpose of directing student and teacher growth toward technology integration, technology literacy and technology use.
- Manages a variety of program specific projects and components (e.g. online resources, instructional software, federal projects, district initiatives, etc.) for the purpose of providing guidance and direction needed to ensure project success.
- Participates in meetings, workshops and seminars for the purpose of conveying and/or gathering information required to perform functions and/or representing the District to external individuals and/or organizations.
- Prepares a variety of materials (e.g. reports, memos, letters, procedures, manuals, assessments, etc.) for the purpose of documenting activities, providing written reference, and/or conveying information.
- Responds to inquiries for the purpose of providing information and/or direction. Serves as liaison to software/hardware providers for the purpose of conveying and/or receiving information and coordinating district activities.

Other Functions

Performs other related duties as assigned for the purpose of ensuring the efficient and effective functioning of the work unit.

Job Requirements: Minimum Qualifications

Skills, Knowledge and Abilities

SKILLS are required to perform multiple, technical tasks with a need to periodically upgrade skills in order to meet changing job conditions. Specific skill-based competencies required to satisfactorily perform the functions of the job include: operating standard office equipment; planning and managing projects; managing technical employees; utilizing pertinent software applications; effective listening; problem solving; training; and supervision.

KNOWLEDGE is required to perform algebra and/or geometry; review and interpret highly technical information, write technical materials, and/or speak persuasively to implement desired actions; and analyze situations to define issues and draw conclusions. Specific knowledge-based competencies required to satisfactorily perform the functions of the job include: current generation and emerging instructional technology; bookkeeping/accounting practices; curriculum and instructional methods; and English grammar/punctuation/ spelling/vocabulary.

ABILITY is required to schedule activities, meetings, and/or events; often gather, collate, and/or classify data; and consider a variety of factors when using equipment. Flexibility is required to work with others in a wide variety of circumstances; analyze data utilizing defined but different processes; and operate equipment using a variety of processes. Ability is also required to work with a diversity of individuals and/or groups; work with a variety of data; and utilize a variety of types of job-related equipment. Problem solving is required to analyze issues and create action plans. Problem solving with data frequently requires independent interpretation of guidelines; and problem solving with equipment is moderate to significant. Specific ability-based competencies required to satisfactorily perform the functions of the job include: adapting to changing priorities; communicating with persons of varied backgrounds and technology expertise; establishing and maintaining effective working relationships; meeting deadlines and schedules; providing direction; leadership; setting priorities; and working as part of a team.

Responsibilities include: working independently under broad organizational guidelines to achieve unit objectives; directing other persons within a small work unit; and monitoring budget expenditures. Utilization of some resources from other work units is often required to perform the job's functions. There is a continual opportunity to impact the organization’s services.

Working Environment

Masters degree in job related area.
EDUCATION: Master Degree in Education and related technology skills

JOB DESCRIPTION

INSTRUCTIONAL TECHNOLOGY COACH

Adapted from the SDE Mathematics and Science Unit Memorandum of Agreement

Qualifications, Job Description/Duties

Qualifications:

- Degree and teaching certificate in science, math, or language arts and a Level IV ePortfolio status
- NOTE: Three years successful coaching experience and ongoing enrollment in relevant education courses may be substituted for the certificate. This exception ONLY applies to Cohort I coaches who have spent three years in the Office of eLearning Technology Curriculum Coaching Program
- Ability to use, implement and maintain an ePortfolio system for teachers, students and administrators
- Extensive knowledge of the International Society for Technology in Education (ISTE) standards for teachers, administrators, and students
- Experience in education, instructional technology and leadership
- Expertise in a wide variety of technologies
- Experience utilizing technology as a tool for active/authentic learning
- Experience creating of technology-rich units that integrate technology into the curriculum
- Knowledge of best practices for teaching and learning
- Skills in staff development and facilitation skills
- Ability to work effectively in a collaborative environment
- Interest in working with adults, specifically teachers, and also students as they incorporate technology into their teaching and learning process
- At least 3 years experience as a successful Reading Teacher

Job Description/ Duties:

- The purpose of the coach at the school is to help raise student achievement by serving as a resource for teachers. The coach will be involved in activities that empower the teachers. These activities will be encouraged.
- If teachers have rotating duties such as bus, lunch or hall duty, the coach can occasionally volunteer to share those duties ONLY when this does not interfere with the ultimate goal of partnering with the teachers for classroom instruction to raise student achievement. The technology coach is a TEACHING and INSTRUCTIONAL POSITION. Under no circumstances will the coach be used for technical support or other administrative duties. The curriculum coach position is the SOLE position that the curriculum coach can hold.
- Coaches will not conduct formal observations to collect data for teacher evaluations. They will be co-teaching, planning and partnering with the teachers to implement standards-based lessons that integrate technology effectively.

Technology coaches will work collaboratively with teachers, the school media specialists and any other instructional coaches or specialists assigned to the school.

- The coach will not be used as a substitute teacher or a media specialist at the school.
- Coaches can partner with teachers to instruct classes when it is for the purpose of modeling an effective lesson. Teachers are expected to be actively involved in teaching.
- Coaches will be available to participate with their assigned teachers during planning sessions, team meetings, and other professional development opportunities.
- Coaches will provide technology resources and training to teachers based on their requests and needs.
- Coaches are assigned to specific teachers and should spend time working with these teachers.
- Coaches will also provide resources for professional development to teachers. The coach is responsible for partnering with the District PD Coordinator to offer at least 2 inservice trainings on the ePortfolio System.
- Coaches are responsible for having all district teachers and students assessed in ePortfolio system and reviewing their portfolios and technology requirements.
- Coaches are responsible for attending monthly professional development training sessions in Columbia on instructing teachers on the components (self-assessments, requirements, portfolios, etc.) of the management system
- Coaches are responsible for instructing teachers on how to administer proficiency assessments for students
- Coaches are responsible for integrating technology into the curriculum by assisting teachers on how to develop effective teacher and student ePortfolios
- Coaches are responsible for providing at least 8 hours of annual technology staff development based on teacher's technology skills

JOB DESCRIPTION

Job Title: Administrative and Technical Support Specialist

Immediate Supervisor: Director of Technology.

Terms of Employment: 240 Days

Job Summary:

Serves as the technical support for end-point devices (workstations, laptops, printers, scanners, etc.) on the networks at two administrative sites; and provides non-technical administrative support for the Director of Technology.

Job Qualifications:

All new applicants for this position will be required to have the following credentials unless otherwise noted:

1. An associates' degree or higher.
2. Experience working in public education settings is preferred.
3. Formal training in supporting end-point technology devices (computers, laptops, tablets, printers, scanners, etc.), operating systems, and end-user applications is preferred.
4. Three years' experience with supporting computers, laptops, printers, scanners, and other end-point devices on an operational local area network.
5. Experience and skills in the use of Microsoft Office, including Word, Excel, PowerPoint, Outlook, and Access.
6. Trouble-shooting skills and experience with solving hardware and software problems at the end-user desk.
7. Experience with help desk use and support.
8. Experience with database management, including inventory and procurement.

Job Responsibilities:

This position requires the ability to work in two separate, but related, areas: (1) Technical support and (2) administrative support.

Responsibilities for technical support include the following:

1. Respond to and manage help desk requests for technical support.
2. Trouble-shoot and resolve technical issues at the end-user desk, including network connections. This does not (necessarily) include knowledge or skills related to network hardware.
3. Install software applications on workstations and provide access to those applications.
4. Provide support for specific software, as needed.
5. Image/re-image workstations, as needed.
6. Install and configure peripheral devices (printers, scanners, etc.) that are connected to workstations, laptops, and the network.
7. Be able to lift and successfully move up to thirty pounds.

Responsibilities for administrative support include the following:

1. Create and print financial reports related to the Technology Office
2. Create requisitions and purchase orders for the Technology Office
3. Process technology invoices for payment
4. Process telephone invoices by department and office
5. Maintain help desk ticketing system as well as help desk calls
6. Maintain the Technology Office webpage
7. Maintain inventory for technology equipment and fixed assets
8. In collaboration with other offices and departments, maintain PARR 5% record keeping
9. Serves as the backup staff member for transcript requests

General responsibilities include the following:

1. Keep supervisor advised of any potential hardware or software problems or conflicts that may have an effect district-wide.
2. Act in a professional manner at all times.
3. Understand and follow all district policies and procedures.
4. Perform other duties as assigned by immediate supervisor.

APPENDIX D

Technology Budget

Jasper County has allocated $931,000 for technology expense not covered by e-rate or other alternative funding sources and approximately $1,000,000 in e-rate recoverable costs.

General Fund Budget Allocations:

Salaries: $486,000.00

- Technology Director: $65,000
- Instructional Technology Director: $55,000
- Instructional Technology Coaches (4): $200,000
- Student Information System Coordinator: $48,000
- Computer Technician II: $44,000
- Computer Technician I: $38,000
- Administrative Assistant/Support Specialist: $36,000

Fringe Benefits: $151,000

Contracted Services:

- Network Engineer: $25,000
- Systems Engineer: $25,000

Purchased Services:

- Professional Development: $11,000
- Outsourced Technical Support: 52,000

Supplies: $6,000.00

Technology Equipment: $175,000

TOTAL: $931,000.00

Special Revenue Funds

The district's vision is to integrate the use of technology in all content areas. With this vision in mind, individual school budgets for professional development related to the integration of content areas and technology will be supported by these funds.

E-Rate Projects

The Jasper County School District will use e-rate funding to recover up to 90% of the following project costs:

5. Telephone system: $325,000
6. Wireless networking: $550,000
7. Network equipment: $175,000

APPENDIX E

Additional Information

The following papers define specific needs that must be addressed in building/re-building the technology infrastructure for the Jasper County School District. The first paper ("Tactical Technology Plan"; page 47) deals with basic, but essential, components of the network and its components. The second paper ("Status of Wireless Network Capacity in School Buildings"; page 54) deals with wireless connectivity to support teaching and learning.

Jasper County School District

Tactical Technology Plan

September 24, 2012

Introduction

There is little doubt that the technology resources available in the Jasper County School District (JCSD) are under-used because those resources are unstable and inaccessible for an significant amount of time during each school day. Educators, administrators, and students are unable to count on the technology and, thus, cannot plan for the use of needed online and networked resources.

The problems that contribute to instability and inaccessibility fall into five basic areas:

6. **Bandwidth**: Because JCSD has not implemented specific requirements for full access to the state network, JCSD is limited to 10 mbps for access to the Internet and state network resources. See Strategy A, below, for plans to resolve this issue.
7. **Network Infrastructure and Security**: The JCSD internal network infrastructure lacks integration, cohesion, and structure, as evidenced by the condition of wiring closets, computer labs, and almost daily network component (switches, routers, and cabling) failures. The lack of true security within the system, its applications, and data is part of this problem, as well, with no systemic identification management or access control. See Strategy B, below, for plans to resolve this issue.
8. **Servers**: File servers and content servers are outdated and have multiple virtual servers running on processors that were not built to handle to traffic those processors are seeing. See Strategy C, below, for plans to resolve this issue.
9. **Electrical**: While the broad electrical issues are being handled by SCE&G, the stability of the network is affected almost daily by the lack of sufficient wiring and reliable uninterruptable power sources (UPSs) in the wiring closets and in other critical areas. See Strategy D, below, for plans to resolve this issue.
10. **Support for End-Point Devices**: Workstations in many (even a majority) of the labs in schools are not fully functional and, as such, cannot be used to support the teaching and learning goals of those schools. Teacher and student computers in classrooms have not been made operational in a systematic manner and are not available for record keeping, management, or learning activities. Other technology resources, like digital white boards, are not connected and, thus, not used as teaching and learning resources. See Strategy E, below, for plans to resolve this issue.

These five problem areas create operational and learning environments that lack important resources that can contribute to effective support for teaching and learning. Resolving these technical issues in the very near term will stabilize network and online resources so that JCSD can meet its operational and educational goals.

A Set of Tactical Plans to Address JCSD's Technology Needs

It is the goal of the Jasper County School District to address the deficiencies in technology- and data-related resources and to turn those resources into stable and

reliable assets that can be can support teaching and learning. To attain that goal, several specific projects must be implemented and completed within a short (but reasonable) period of time.

As any school principal who has taken on the responsibility for turning around a school, a curriculum, or a culture can attest, this type of comprehensive change (a) cannot be done overnight and (b) is successful only if there is a focus on the integration of all available resources. Such change is complicated because it involves changing behaviors and attitudes that have been entrenched over time and tradition.

The following sections describe specific tactical efforts that are being made to create a network infrastructure and system that can support academic goals for teaching and learning. Some of the work can be done concurrently with other related work; some of the work requires the completion of other parts of the work and will be scheduled sequentially.

Tactical Action A: Acquiring More Bandwidth

The bandwidth to which JCSD has access is provided by the state through the collective E-Rate program administered by the South Carolina Budget and Control Board through the state CIO's office. The state sets specific access requirements for districts with regard to the bandwidth that is allocated. Currently, JCSD does not meet the state's requirements and, as a result, the bandwidth available to JCSD is throttled by the state to the absolute minimum.

Currently, the state allocates 10 mbps (megabits per second) to JCSD. In the technical jargon of the day, JCSD has a "10 mbps pipe" to the state network. That means that all of JCSD's Internet traffic gets to the Internet and back through that pipe. (Please note that bandwidth is a measure of speed; however, we talk about it as though it were a measure of size.)

To resolve that issue, JCSD is buying a "caching proxy server" to add into its network to control the excessive traffic coming from and going to JCSD. The caching function will capture every request to go to the Internet and will copy the accessed webpage onto the new server. Other requests going to the same website will get the information and screens from the new server – which means that the second and subsequent requests will not go out into JCSD's pipe. That will do two things: (a) Reduce traffic on the state network and (2) speed up access to websites being used by multiple teachers and/or students (JCSD's internal network is many times faster than the Internet).

The proxy function of the server will help protect JCSD's computers from "malware" that can turn computers into spamming machines. The proxy will capture each computer's IP address and will substitute another IP address for it before letting the computer access the Internet. In that way, the classroom computer or the office computer will never be identified on the Internet – which will keep malware from finding those computers and infecting them. That means that our computers will not be sending a bunch of garbage back out onto the state network.

So, the caching proxy server will improve our use of the 10 mbps pipe that we currently have. There will be less traffic going out – with better results on the inside.

But the bonus to that is this: When we have installed, setup, configured, and implemented the caching proxy server, the state will increase our bandwidth to 100 mbps. That will mean we can have many more operational and learning resources available because the caching will provide resources internally so more and more resources can be requested without clogging up our pipe (as well as not clogging up the state network).

The implementation of a caching proxy server will increase and improve access to resources to support teaching and learning.

Tactical Action B: Stabilizing and Securing the Infrastructure

The current network infrastructure in JCSD is physically and logically unstable and unsecure. It is physically fragile, with components scattered across several sites and in several locations within those sites. In addition, physical components – such as switches, routers, and servers – must be mounted in racks and secured with battery back-up to maintain power in electrical outages.

We are contracting with several experts in network engineering, implementation, and security to strengthen the network infrastructure. Those experts will create diagrams, schematics, and descriptions of our existing network infrastructure, including the switches, routers, servers, and other devices. They will also map the wiring closets and cabling that connect the infrastructure devices to the end-point devices in classrooms, offices, and other work areas.

When the existing infrastructure has been mapped, the experts will assist us in re-designing the infrastructure to support JCSD's operational and learning goals. The re-design will include re-fitting the wiring closets, labeling ports on switches and routers, labeling end-point drops in all work areas to correspond to the ports in the wiring closets, and re-configuring the cabling to connect end-point devices to the appropriate switches and routers.

We will contract with expert network technicians to implement the labeling, wiring, and testing of the connections. A pilot of that process is already planned for the JCAP lab in which students are trying to do credit recovery through online learning activities and resources.

Security experts will advise JCSD leadership about network and infrastructure security and will design and implement a security plan to meet the district's needs.

The implementation of this part of the tactical plan will improve local support and maintenance for end-point devices and end-users by organizing and systematizing the network infrastructure so that problems can be easily traced to core causes rather than requiring the current trial-and-error diagnosis of problems. Support for end-users will be more effective and efficient as a result of successful completion of this part of the tactical plan.

Tactical Action C: Improving Server Reliability and Data Backup

The JCSD email systems runs from two different physical or virtual servers, each of which contains the email boxes of a random set of district users. The different post offices may

have separate problems at the same time, causing diagnosis of either problem to be inefficient and time-consuming.

As many as twenty-two virtual servers are running off of one physical server from the wiring closet on the Hardeeville school campus. That may be the cause of speed issues for several applications and for the failure of some applications on the JCSD network. While virtual servers are generally stable and reliable, such a number of virtual servers running off one physical processor may be problematic.

Currently, backups of data and resources on our physical and virtual servers are located at the same site and in the same wiring closet as the original data and resources. In a catastrophic failure or disaster, the backups would be lost along with the originals.

We are contracting with several experts in systems design and server deployment to improve the performance and security of servers on the JCSD network. Those experts are analyzing the physical and virtual locations of all servers on our network and the applications running on those servers. Based on the results of those analyses, we will restructure our server configurations to provide the best access with the best flow-through of resources and data.

We also will place all physical servers into the appropriate racks and closets to ensure physical security of those servers and their contents. At the same time, we will arrange secure off-site backup procedures so that data and resources located on the Ridgeland campus will be backed up to devices on the Hardeeville campus, and vice versa. Data and resources located physically at the Central Office building will be backed up to the Hardeeville system.

(As a sidebar, we will also develop tactical strategies for possible hurricane situations in which someone will have the responsibility of physically removing servers from each site and securely evacuating those from the projected hurricane strike area.)

Our contracted experts will design and implement security systems and procedures for onsite and remote access to our servers and the applications running on those servers.

Implementation of this part of the tactical plan will provide stable and reliable access to the applications and resources that have been licensed and/or created to support teaching and learning as well as to meet the district's operational support goals. Unauthorized physical and remote access will be controlled so that resources are not lost.

Tactical Action D: Keeping the Power On

The electricity utility provider is currently working on the stability of the electrical resources being delivered to each building. Those resources have already become more stable since the start of the 2012-2013 school year. We expect that the utility provider will continue to provide stable and reliable electricity that can keep our systems up and running 100% of the time, even in storms and other weather situations.

Internally, the building electrical systems meet all building codes and should be stable if the source electricity is stable.

The heart of the network infrastructure in each building is in the technical wiring closets where racks of switches, routers, servers, and other devices form the network distribution centers. All network cabling in classrooms, offices, and other work areas is connected to those wiring closet devices. If a switch, router, or server fails, then the end-point devices connected to those will also fail. Electrical power to those wiring closets must be maintained 100% of the time.

Each rack in the wiring closets around the district will contain one or more industry-standard uninterruptable power supplies (UPS). That UPS will be plugged into an electrical outlet on a dedicated circuit so that other devices in the building (like copiers and laminating machine) will not be on the same circuits; this will mean that other devices cannot trip the circuit breakers supporting the wiring closets.

Each UPS will also contain an industry-standard battery for which the charge is maintained. In the event that power to the wiring closet is lost, the UPS battery will maintain power to the switches, routers, and servers for a period of time – usually sufficient time for the systems to be shut down by network support staff.

Each switch, router, and server in the wiring closet will be plugged into a UPS. If source power fails, the UPS will provide battery power to those devices until those devices can be shut down, the battery drains completely, or the power comes on again. Smart UPSs can email network support staff that power has been lost and those staff should be able to shut down systems before the battery drains.

JCSD's strategy will be to send those notifications to expert resources that can access the system and perform the appropriate shut downs and re-start the systems when power is restored.

JCSD will also develop, with expert vendor guidance, replacement cycles for the batteries in its UPSs so that its systems do not fail because of battery failure.

Through successful implementation of this strategy, electrical systems should support JCSD's technology resources.

Tactical Action E: Support the End-Point Devices

Many end-point devices, such as workstations, printers, digital white boards, telephones, and other end-user devices have not been installed, setup, configured, connected, tested, or secured and, as a result, teachers, students, and administrators do not have access to networked and online resources. Access to operational and instructional resources requires functioning and connected hardware and training in the use of that hardware.

Our tactical strategy is to work on the end-point devices in the schools at the same time that we are preparing the infrastructure:

1. As part of that strategy for concurrent preparation, we are planning to hire a second technician (in addition to our current technician) to support and make-ready the end-point devices on the school networks.
2. Toward that end, we are scheduling specific days and times at each site for each technician.

3. The following is the schedule for our current technician, beginning Monday, September 17, 2012:
    a. Mondays and Wednesdays: One technician will be at the Hardeeville Campus and one will be at the Ridgeland Campus for the defined regular working hours; morning with the elementary school and afternoons with the middle or high school.
    b. Tuesdays and Thursdays: The technicians will be at the other campus; in this way, each campus and school will have access to each technician's unique knowledge and skill sets.
    c. Fridays: The technicians can be on one campus (selected by the Technology Director) to complete previously started work or start new tasks; work at JCAP, ACE, the Central Office building, or another site (selected by the Technology Director) on special or long-term projects. Fridays may also be used occasionally for technical training opportunities and for working together on special projects.
    d. With fixed schedules for technicians, we should eliminate or significantly reduce the cost of travel between campuses.
4. With the knowledge that the technician will be at a school for a well-defined period of time, the principals should be able to identify their technical priorities and direct the technician to address those.
5. To help the system work, principals should be sure that each technician has a sign-in/sign-out sheet for each assigned day – and that it is used as required. Any irregularities or inconsistencies in the use of the sign-in/sign-out procedures should be reported to the Technology Director.
6. To make the best use of the assigned times, principals should have their priorities defined and listed when the technician arrives.
7. Each technician will have a log book with her or him and will log the tasks on which he or she works, including the approximate start and end times during which those tasks were addressed and including a brief statement of the results.
8. On extremely rare and critical occasions, we may pull a technician from the scheduled site; the request for the technician to be somewhere other than the scheduled site will come from the Technology Director and will be made through the principal or another administrator or staff member if the principal cannot be reached.
9. If we ask that the scheduled technician be sent to another site, the circumstance is critical for teaching and learning and/or systems failures.
10. If, at any time, a technician is not meeting the school's needs, the Technology Director should be notified by email. The issues will be addressed immediately and the results will be reported back to the principal.

Between mid-September, 2012, and mid-November, 2012, the goal of the district's technicians is to make every end-user device in each school operational, connect those devices to the appropriate network resources, and ensure access to those resources by each end-user.

The technicians will be working on access to resources through the school's end-point devices. If there are other technology needs related to infrastructure, servers, bandwidth, specific applications, or other networked or online resources, those should be reported to

the Technology Director. The assigned technician should not be asked to address network issues other than those associated with connecting your end-point devices.

As the technology infrastructure becomes more stable, it is important that end-point devices are made ready for connection and use, as well. The implementation of this part of the tactical plan will ensure that those devices are ready when the network is ready.

Conclusion

The district's technology infrastructure is the district's central nervous system, connecting resources to the needs of its teachers and learners. Without a stable, functioning, and reliable technology infrastructure and accessible end-point devices, teaching and learning cannot be planned, delivered, or implemented to meet the goals of the district.

If this tactical plan is implemented properly and expertly, JCSD will have the capacity to support teaching and learning at the operational and academic levels that it needs.

After the successful implementation of the strategies and plans described above, the district must also provide expert support and maintenance of the system so it remains stable, functioning, and reliable 100% of the time. Ongoing support and maintenance of the system will require commitment of resources beyond the current strategy of simply putting out fires as those occur – a strategy that is not sustainable and does nothing to ensure stability and reliability in the system, as evidenced by the current status of the district's technology resources.

Maintenance of the district's networked resources should be one of the highest priorities for the district and the employment of knowledgeable and formally trained experts is essential.

Without 24/7 access to those networked resources, meaningful and persistent academic growth will be impossible.

The above tactical plan, along with strategic and systemic support and maintenance of the system, will provide the essential environment needed to support teaching and learning in JCSD – and to create accelerated student improvement.

Jasper County School District

Data Management and Technology Office

Status of Wireless Network Capacity in School Buildings

Gary West, Chief Officer for Finance and Data Management

May 17, 2013

INTRODUCTION

This white paper is a status report on the capacity of the Jasper County School District's existing networks to support wireless network access for all staff and students. The need for this status report – and concomitant strategic planning – related to the growing demand for wireless access for faculty, staff, administrators, and students.

Currently, the JCSD does not have the capacity or the technical resources to provide ubiquitous wireless access to its networks or the Internet at this time – or in the very near future.

This paper provides information about (1) the current context, (2) the current status, (3) the required resources, (4) a timeline for implementation, and (5) the estimated costs of providing ubiquitous wireless network access in our schools.

CURRENT CONTEXT FOR WIRELESS NETWORK ACCESS

In September 2012, the Data Management/Technology Office developed a tactical technology plan to bring the network, as it existed at that time, up to par with regard to stability and accessible resources. That plan addressed (1) bandwidth (upgraded in March 2013), (2) network infrastructure and security (still a work-in-progress), (3) server stability (much improved and much more stable), (4) electrical issues (power grid issues and local battery backup have been resolved), and (5) support for end-user devices (on-going maintenance has been improved and summer plans are in place to provide 100% access when the 2013-2014 school year starts).

The purpose of that tactical plan was to focus efforts on the basic infrastructure and to provide stable access to network and online resources so that end users would know the network would be available 100% of the time – and that, as a result of that stability, they could count on the resources in planning their work, their teaching, and their learning.

The basic foundations of the network have been systematically improved over the course of the last several months; however, wireless access to the District's network has not been part of the infrastructure plan and is not part of the enhancements as described in the tactical technology plan.

The current technology network in JCSD is not sufficient to support ubiquitous wireless networking at this time. Specifically, the current network is not sufficiently stable to support and secure wireless access by students and staff.

The existing wireless networks (JCSDGUEST and JCSDW) were designed and implemented as small networks to provide access to visitors who are doing work for the district and for administrators. Wireless access points are located only in the hallways and

a few other designated areas. The current wireless signal is not strong enough to penetrate the walls between the hallways and the classrooms.

Placing additional wireless devices on the existing network has more potential to degrade the network than to enhance end-user access – because the infrastructure needed to support heavy-use wireless does not exist. There is much work to be done before we can add ubiquitous wireless capacity to the existing network. That work must be part of our on-going strategic plan and the logistics of implementation are months away from today's date.

RESOURCES NEEDED TO BUILD UBIQUITOUS WIRELESS ACCESS IN SCHOOLS

Because the existing wireless networks are not sufficient to support ubiquitous wireless access, there is much work to be done to create a wireless network that is sufficiently stable, strong, secure, and safe. The following list contains the factors that must be addressed in order to provide ubiquitous wireless in our school buildings:

1. Wireless networks are only wireless between the end-user device and the wireless access point; the wireless access point must be connected, via wire, to a secure network (that is, the District's network).
2. Access through a wireless device is governed by the same acceptable use policies and federal and state requirements as is a wired device (because both use the same District-owned network).
3. Because the existing wireless network signals cannot penetrate the walls between hallways and classrooms, a wireless access point is required in each classroom (if wireless devices are to be used in the classrooms).
4. To place a new wireless access point in a classroom, three factors are important: (a) The wireless access point must be "manageable" on the network (that is, a technician must be able to see that access point from any remote location), (b) a cable must be run from a near-by wiring closet to that classroom, and (c) the wireless access point must be near an electrical source.
5. Those cables/wires must be secured in wire mold (on the wall) and run above the ceiling (between the classroom and the wiring closet).
6. The cable (or wire) to which the wireless access point is connected must be connected (also) to an active port on a network switch in a nearby wiring closet. Network switches come in 16, 24, 48, and 64 port formats. The type of switch is dictated by the number of wireless access points to be connected.
7. Each switch must be mounted and connected to the appropriate network device in each wiring closet (so it will be connected to the network).
8. Each switch must be configured to work within the network to which it has been connected.
9. Each switch must be configured to provide the appropriate paths through virus protection, content filtering, and proxy resources for each wireless device.
10. Each wireless device must then be configured to work within the wireless network (in the same way that each wired device is configured to do so).
11. Wireless devices do not have special access different from wired devices. The same filtering, security, virus, and proxy services apply to wireless devices as apply to wired devices.
12. Cheap, home-style wireless access points are not acceptable and will not be attached to the district's network.

13. Wireless access points, like all other routers on the network, must be manageable and self-healing devices (the cost of support and maintenance is too great, otherwise).
14. Using wireless devices within the District's network is not as simple as attaching a wireless access point to the network; if it were, it would have been done a long time ago.
15. Wireless networks must provide the same level of security and safety as can be provided through wired networks.
16. For full implementation of ubiquitous wireless access in our schools, the District will have to purchase the following items:
    a. Eleven (11) switches (five for each campus and one for JCAP)
    b. Cabling/wiring to all classrooms and most offices
    c. Approximately 141 managed wireless access points
    d. Electrical outlets in the ceiling of each classroom
    e. Labor for installing and configuring switches
    f. Labor for installing and terminating cables/wires
    g. Labor for installing and configuring managed wireless access points
    h. Labor for installing and activating electrical outlets
    i. Considerations for supporting and maintaining more than 150 new devices (switches and wireless access points)
    j. Considerations for supporting and maintaining wireless end-user devices
    k. Engineering and design to integrate the wireless components into the existing network

TIMELINE FOR IMPLEMENTATION

Although there has been no strategic planning for implementing ubiquitous wireless access in JCSD and there is no funding for such an implementation, a timeline can be estimated based on a designated start date. From whatever start date is defined, the following timeline can be estimated:

1. Start date is defined
2. Engineering and design: Approximately 4 weeks after that date
3. Installation and configuration of switches: Approximately 3 weeks after design build (some concurrent with design build)
4. Installation of electrical connections in ceilings: Approximately 8 weeks after design is completed
5. Installation of network cabling/wiring in ceilings: Some concurrent with electrical; approximately 3 weeks after electrical is completed
6. Installation of managed wireless access points: Approximately 2 weeks after cabling/wiring is completed
7. Connection and configuration of connection to existing network: Approximately 2 weeks after wireless access points are installed and configured
8. Configuration of system to comply with security, safety, filtering, and scanning: Approximately 2 weeks after installation of the wireless access points
9. Total time from start date: Approximately 17 weeks (approximately half a school year)

ESTIMATED COST OF IMPLEMENTATION

Although we would need to get actual quotes from vendors and contractors who would do the work, I estimate that the ubiquitous wireless network will cost between $500,000 and $600,000. Funding sources must be established before the other work starts.

OTHER CONSIDERATIONS

During the summer of 2013, we will setup and operate a minimal wireless network in one room at HRMS. That network will provide access to restricted online resources as part of the Acellus program to be used for the Twilight School. Following that summer program, we will not setup other wireless networks in schools until the completion of a strategic wireless networking plan and the establishment and installation of the network infrastructure to support ubiquitous wireless networking.

This decision is not a technology control issue. If we set up ad hoc wireless networks around the District, we will perpetuate the disjointed, often disconnected, network that has been a part of the JCSD technology legacy and experience. With that in mind, program leaders should not plan technology purchases that require wireless connectivity by students and staff. The existing network simply will not support it and attempting to implement such programs will result in failure to launch.

As program leaders begin planning for technology resources, they should include district technology staff from the outset so those staff can advise about the feasibility of implementation before purchases are made. As required by local policy and state procurement practices, all technology purchase plans should come through the Data Management/Technology Office before a purchase requisition is created. The Finance Office will not approve a purchase of technology that does not include the endorsement of the Data Management/Technology Office.

Vendors will not design pieces of the JCSD network unless they are under contract with the Data Management/Technology Office to do so. As program leaders talk with vendors about their products and services, they must direct the vendor to this office if he or she has devices that must sit on the district's network or if his or her software must reside on one of the district's servers. Compatibility and compliance with our standards must be established before a purchase requisition is created.

CONCLUSION

Ubiquitous wireless access to the JCSD networks and resources is part of the District's long-term goals. The existing network is not sufficiently prepared to support wireless access for students and staff at this time. The Data Management/Technology Office has the responsibility for creating the infrastructure and engineering the wireless network that will become part of the entire set of technology resources that will be available to all students and staff. Ad hoc wireless network will not be part of the existing network.

As the District's network is expanded and enhanced, the goal is to create permanent and stable resources. Continuing the previous practice of kludging pieces to the existing network will result in the same instability and insufficiency of all network resources that has existed to this point.

The wireless networking strategy for JCSD must be part of an integrated plan that results in an integrated system. None of our instructional or operational programs can succeed with less than that.