Jamesville-DeWitt
Central School District

Comprehensive Technology Plan

2016-2019

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Vision for Technology

Jamesville-DeWitt students will thrive in a digital world as engaged, technologically literate citizens. They will skillfully utilize technology to seek, analyze, evaluate, and communicate information, create knowledge, and enhance productivity. They will fully participate in the global world by building the societal skills to interact.

Educators will skillfully use technology in their role in the teaching-learning process, including communication with students, families, and colleagues. Technology will be integrated into learning experiences that promote content understanding, creativity, effective communication and collaboration, critical thinking, and the appropriate use of specific technology tools on the part of each student.

The effective use of technological resources will help ensure the opportunity for each student to become a life-long learner, achiever, and effective communicator.

Analysis of Current State

Since the first comprehensive technology plan was approved the Jamesville-DeWitt Central School District has undergone continuous change in the use of technology to support teaching, learning, and administrative functions. The plan identified five specific areas:

- Classroom instructional technology
- Technology for administrative support
- Development of local and wide area networks
- Staff development
- Technology support and coordination- personnel

Strategically, the plan called for *growing* each of these areas concurrently. Increasing capacity in one without the others would prevent the District from achieving its goal of effective use of technology to support teaching/learning and administrative functions. It was also a strategic decision to fund the plan within the operational budget, increasing the financial commitment to technology gradually as opposed to a one-time large infusion of resources through a referendum.

Infrastructure

The School District is connected to the Internet through the Central New York Regional Information Center (CNYRIC/OCM BOCES) via a fiber connection. The High School, Middle School, Elementary Schools, and Transportation & Maintenance Center are connected through a fiber optic network.

All six buildings have comprehensive wired and wireless networks. Classrooms, labs, libraries, offices, and all other areas have connectivity to the network. The network is secured through the CNYRIC with a firewall and filtering systems for Internet access and email.

In 2013, the vast majority of the entire infrastructure was replaced:

1. All copper wiring was replaced with Category 6e copper cabling.
2. At the Middle School and the High School, network closets were added to house switches that allow for better connections of computers or printers to the network.
3. All indoor access points were replaced with new access points.
4. Outdoor access points were added for coverage of outdoor instructional areas.
5. Controllers for the centralized management of wired and wireless network hardware were added.
6. All Ethernet switches were replaced with Gig POE Ethernet (power over Ethernet) switches.
7. All fiber cabling was tested and will be replaced as needed.

Instructional Technologies

Each school in the District has a wide variety of educational technology hardware, software, and services. In addition to laptop and desktop computers, faculty, staff, and students have access to a growing number of tablets and Chromebooks. Students are allowed to use their own electronic devices to support learning at the discretion of the classroom teacher. Interactive whiteboards/monitors, scanners, document cameras, and projectors are common types of multimedia devices available for instructional use.

The use of Web-based software for instruction has grown significantly in recent years. The automated libraries provide additional access to both internal and external databases and resources. All library systems are accessible at any Internet-connected device.

Faculty, staff, and administration use several Web-based applications to increase communication and improve management capabilities. All teachers report grades online using Schooltool. Parents use Schooltool to access grades of Middle School and High School students. Faculty and staff, as appropriate, may access a centralized student management system that is hosted by OCM-BOCES. Many teachers have created Websites to support instruction. A Google Apps for Education pilot project began in 2015. Additionally, teachers and administrators have increased their use of data tools to inform instruction and planning.

Elementary Schools
The classroom is the primary setting for instructional technology integration. Laptops, iPads, or Chromebooks are used for individual and small group instruction. Interactive whiteboards and document cameras are used for whole class instruction.

A lab in each elementary school is used for individualized instruction and assessment (e.g., Renaissance Learning, VPORT), guided Web research, content-based Web sites (e.g., Master Guru, Starfall), and whole class instruction.

Middle School
Computer labs are used extensively for instructional technology integration. There are two traditional computer labs, carts of Apple laptops, carts of iPad tablets, and carts of Chromebooks. The library has desktop computers for student use. Web research in the content areas, word processing, and project-based learning are common throughout all grades and subjects. Renaissance Learning is used for individualized instruction and assessment in Language Arts.

Technology education classrooms contain desktop computers and 3D printers for student use in the areas of video production, computer-assisted drawing, architecture, and Web research.

Interactive whiteboards or flat panel touch monitors and document cameras are used for whole class instruction and student presentations.

High School
Computer labs are used extensively for instructional technology integration. There are two traditional computer labs, carts of Apple laptops, carts of iPads Mini tablets, and carts of Chromebooks. The library has desktop and laptop computers for student use. Web research in the content areas, word processing, and project-based learning are common throughout all grades and subjects. Journalism classes use one of the Mac labs frequently for production of the school newspaper. Yearbook production also takes place in a Mac lab.

Additionally there are two labs for Project Lead the Way/Graphic Communications/ Architecture and a small lab for Video production classes.

Interactive whiteboards and document cameras are used for whole class instruction and student presentations.

Special Education

Assistive technologies for students with disabilities are used to support their participation and success in the general curriculum. Assistive technology needs are written into individualized education plans in order to provide for equitable access to all aspects of the teaching and learning environment. Access to materials for instruction and assessment are facilitated by educationally-appropriate technologies.

Assistive technology is utilized to address students' unique needs. Word processors, speech to text software, and word prediction software are available to allow equal access in the area of written expression.

Text to speech software allows for student independence when reading text. Instructionally, special education classes are accessing Web-based programs that reinforce reading skills.

Tablets are utilized for a variety of functions. Nonverbal students utilize tablets as a communication device. They also are integrated into Speech and Occupational Therapy sessions to reinforce skills. Special Classes and resource settings use a variety of apps to provide repetition and reinforcement.

Touch screens are available to allow physically handicapped students access to computer programs.

Interactive white boards are utilized in special class settings, allowing for a more hands on experience.

The Special Education department works with an Assistive Technology specialist to assist with evaluation and problem solving for students with a higher level of need.

Technology for Administrative Support

In addition to the student management system (Schooltool), there are a number of programs used to support special education (IEP Direct) and academic intervention services (RTI Direct).

There is a comprehensive computerized financial and human resources system (Wincap) hosted by OCM BOCES. The maintenance staff uses an energy management system and the cafeteria staff uses an automated services program. Transportation information and bus routing are also done with a specialized application (Transfinder).

Staff Development

Staff development to support educational technology comes in a variety of formats. Opportunities are provided through conferences, staff development days, OCM BOCES,

Teaching Center workshops, peer-to-peer collaboration, work with consultants, and support by the technology staff.

Technology Support and Coordination
On-site support and District-wide coordination have been critical to effective use of technology for instructional and administrative functions. The District staff consists of a technology director, a network specialist, a network assistant, and four District teaching assistants. Additionally, there is a teaching assistant in each school to support the use of technology. These teaching assistants also provide technical support commensurate with their skill and experience levels.

Technology Standards for Students

These standards[1] serve as the foundation for the integration of technology into instruction and learning for students. Although the Technology Standards appear here in isolation, they are meant to clearly define our expectations for students within all curricular areas. As technology skills penetrate throughout our society, students will be expected to apply technology skills in authentic, integrated ways to solve problems, complete projects, and creatively extend their abilities. These standards identify several higher-order thinking skills and digital citizenship as critical for students to learn effectively for a lifetime and live productively in our emerging global society.

The Common Core Learning Standards adopted by the NYSED in 2011 have embedded technology throughout the Mathematics and ELA Literacy Standards by design to better prepare our students for college, workforce training, and life in a technological society. Students must have the ability to gather, comprehend, evaluate, synthesize, and report on information and ideas, to conduct original research in order to answer questions or solve problems, and to analyze and create products in media forms. The need to conduct research and to produce and consume media is embedded into every aspect of today's curriculum. As with research, media skills and understandings are embedded throughout the standards rather than treated in a separate section.

For example, the Common Core Learning Standards for Mathematical Practice demand that students use appropriate tools strategically. Proficient math students must consider the available tools when solving a mathematical problem. These tools might include a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

The Common Core Learning Standards describe students who are College and Career Ready in Reading, Writing, Speaking, Listening, and Language as those who use technology and digital media strategically and capably and they demonstrate strong visual literacy skills. Such students employ technology thoughtfully to enhance their literacy skills. Students tailor their searches online to acquire useful information efficiently, and they integrate what they learn using technology with what they learn offline. Such students are familiar with the strengths and limitations of various technological tools and mediums and can select and use those best suited to their communication goals.

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[1] Adopted from the National Educational Technology Standards for Students – 2007

Standard 1: Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:
- Understand and use technology systems
- Select and use applications effectively and productively
- Troubleshoot systems and applications
- Transfer current knowledge to learning of new technologies

Standard 2: Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:

- Advocate and practice safe, legal, and responsible use of information and technology
- Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
- Demonstrate personal responsibility for lifelong learning
- Exhibit leadership for digital citizenship

Standard 3: Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:
- Apply existing knowledge to generate new ideas, products, or processes
- Create original works as a means of personal or group expression
- Use models and simulations to explore complex systems and issues
- Identify trends and forecast possibilities

Standard 4: Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:
- Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
- Communicate information and ideas effectively to multiple audiences using a variety of media and formats
- Develop cultural understanding and global awareness by engaging with learners of other cultures
- Contribute to project teams to produce original works or solve problems

Standard 5: Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information. Students:
- Plan strategies to guide inquiry
- Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
- Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
- Process data and report results

Standard 6: Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:
- Identify and define authentic problems and significant questions for investigation
- Plan and manage activities to develop a solution or complete a project
- Collect and analyze data to identify solutions and/or make informed decisions
- Use multiple processes and diverse perspectives to explore alternative solutions

Technology Standards for Teachers

The New York State Teaching Standards and Elements (2011) lay out the foundational knowledge and skills that teachers need in order to be effective in the classroom. The ability of educators to use a variety of technological tools, techniques, and skills to inform and enhance teaching, learning, and other aspects of professional performance is crucial to their effectiveness in today's learning environment. Since technology is such a prevalent factor in today's world and is included in so many aspects of teaching and student learning, a decision was made to infuse technology throughout all of the Standards rather than to isolate it in a single Standard. Therefore, references to the use of technological resources, knowledge, and skills are found throughout the Teaching Standards (e.g. Elements I.6; II.6; III.4; III.5; etc.).

New York State Teaching Standards and Elements	**Standard 4: Learning Environment** 4.1 Creates a mutually respectful, safe, and supportive learning environment that is inclusive of every student 4.2 Creates an intellectually challenging and stimulating learning environment 4.3 Manages the learning environment for effective operation of the classroom 4.4 Organize and utilize available resources [e.g. physical space, time, people, technology] to create a safe and productive learning environment
Standard 1: Knowledge of Students and Student Learning 1.1 Knowledge of child and adolescent development, including students' cognitive, language, social, emotional, and physical developmental levels 1.2 Knowledge of current, research-based knowledge of learning and language acquisition theories and processes 1.3 Knowledge of and responsive to diverse learning needs, and interests, and experiences of all students 1.4 Knowledge of individual students from students, families, guardians, and/or caregivers to enhance student learning 1.5 Knowledge of and responsive to the economic, social, cultural, linguistic, family and community factors that influences their students' learning 1.6 Knowledge and understanding of technological and information literacy and how they affect student learning	**Standard 5: Assessment for Student Learning** 5.1 Design, adapt, select, and use a range of assessment tools and processes to measure and document student learning and growth 5.2 Understand, analyze, interpret, and use assessment data to monitor student progress and to plan and differentiate instruction 5.3 Communicate information about various components of the assessment system 5.4 Reflect upon and evaluate the effectiveness of their comprehensive assessment system to adjust assessment and plan instruction accordingly 5.5 Prepare students to understand the format and directions of assessment used and the criteria by which the students will be evaluated
Standard 2: Knowledge of Content and Instructional Planning 2.1 Knowledge of the content they teach, including relationships among central concepts, tools of inquiry, and structures and current developments within their discipline[s] 2.2 Teachers understand how to connect concepts across disciplines and engage learners in critical and innovative thinking and collaborative problem solving related to real world contexts 2.3 Uses a broad range of instructional strategies to make subject matter accessible 2.4 Establishes goals and expectations for all students that are aligned with learning standards and allow for multiple pathways to achievement 2.5 Designs relevant instruction that connects students' prior understanding and experiences to new knowledge 2.6 Evaluate and utilize curricular material	**Standard 6: Professional Responsibilities and Collaboration** 6.1 Uphold professional standards of practice 6.2 Engage and collaborate with colleagues and the community to develop and sustain a common culture that supports high expectations for student learning 6.3 Communicate and collaborate with families, guardians, and caregivers to enhance student development and success 6.4 Manage and perform non-instructional duties in accordance with school district guidelines or other applicable expectations 6.5 Understand and comply with relevant laws and policies as related to students' rights and teachers' responsibilities
Standard 3: Instructional Practice 3.1 Uses research-based practices and evidence of student learning to provide developmentally appropriate and standards-driven instruction that motivates and engages students in learning 3.2 Communicate clearly and accurately with student to maximize their understanding and learning 3.3 Set high expectations and create challenging learning experiences for students 3.4 Explores and uses a variety of instructional approaches, resources, and technologies to meet diverse learning needs, engage students and promote achievement 3.5 Engage students in the development of multi-disciplinary skills, such as communication, collaboration, critical thinking and use of technology 3.6 Monitors and assesses student progress, seeks and provides feedback, and adapts instruction to all student needs	**Standard 7: Professional Growth** 7.1 Reflect on their practice to improve instructional effectiveness and guide professional growth 7.2 Set goals for and engage in ongoing professional development needed to continuously improve teaching competencies 7.3 Communicate and collaborate with students colleagues, other professionals, and the community to improve practice 7.4 Remain Current in their knowledge of content and pedagogy by utilizing professional re-sources.

Technology Goals

Goal 1

Every student will effectively access and utilize technology to expand their learning opportunities.

Goal 2

Every teacher will be empowered and inspired to use existing and emerging technology to communicate, collaborate, and support student achievement.

Goal 3

Every administrator will support the integration of technology into curriculum, instruction, assessment, and student learning experiences. Administrators will utilize technology to enhance communication, management, and supervision.

Goal 4

Parents will have digital information made available about their child's educational program. The community will have digital information made available concerning district programs and functions.

Strategies to Achieve Technology Goals

Professional Development

Professional development to support the use of technology to communicate, collaborate, and support student achievement continues as a high priority. It is critical that the professional development program concurrently meets the needs of novice staff as well as expert staff in the use of technology. We will provide professional development opportunities focused on the needs of specific groups of teachers and/or individuals. These opportunities will include training in the use and instructional integration of specific hardware, peripherals, and software for both instructional and management purposes. Professional development to support students with disabilities will focus on developing staff awareness and proficiency with assistive technology and building capacity for evaluation and implementation. Opportunities will be provided to support the integration of technology into all curricular areas. Staff development is most effective when there is immediate opportunity for practice and application of newly-acquired skills. Ongoing follow-up and support is critical to skill development, maintenance, and growth. Therefore, it is important to continue to use the technology committees at each level as a forum for the development of on-site staff development to the greatest extent possible. We remain committed, however, to a comprehensive delivery system to meet the diverse needs of staff.

A variety of venues and resources will be available year round and will include:
- Conferences during the school day, after school, weekends, and summer
- BOCES sponsored workshops
- On-site custom instructional technology workshops led by BOCES staff
- Hands-on support for specific projects provided by District/building technology staff
- Peer coaching
- Collaboration with educators from other schools, including on-site visits to model settings
- Training opportunities for our staff and by our staff on specific technology integration topics by curriculum area and/or grade level
- Training opportunities offered by the JD/SU Teaching Center
- Individual coaching and mentoring sessions offered on topics specific to individual needs
- Collaboration with assistive technology consultants

Instructional Technology

At all levels, we expect to accomplish these objectives:
1. Increase teacher and student access to computing devices
2. Increase teacher and student access to interactive display technology and presentation systems
3. Increase student and teacher access to the most current software, including Web-based applications and resources where appropriate
4. Increase student access to curriculum through assistive technology as designated by the Committee on Special Education
5. Research and pilot innovative uses of technology to improve student learning
6. Identify and replace obsolete technology

Infrastructure improvements are critical to the effective use of technology by staff and students.
We expect to accomplish these objectives:
1. Increase bandwidth
2. Replace fiber cabling
3. Replace network hardware to accommodate increased bandwidth.

General Acquisition Plan

At all levels, our acquisition plan will be guided by the need to:
1. Maintain flexibility to assess and respond to emerging needs
2. Increase student access to computing devices e.g., desktops, laptops, Chromebooks, or tablets
3. Increase the availability of presentation and collaborative technology e.g., document cameras, interactive whiteboards, and interactive flat panel displays
4. Support the use of Web-based curriculum
5. Replace obsolete technology

Special education will acquire:
1. Technology necessary for specific special education programs
2. Student specific hardware and software to comply with IEPs

Acquisitions to maintain and improve infrastructure will include:
1. Increases in bandwidth
2. Replacing fiber cabling, switches, access points, and network controllers

Plan Evaluation

It will be the responsibility of the administrative team (building principals, district administrators, and technology coordinator) to annually evaluate the effectiveness of plan implementation. Evaluation will include:

- Review of technology use by staff and students by the elementary, middle school, and high school technology committees:
    - Data concerning staff proficiency in the use of technology for instructional and management functions
    - Usage data such as logs of computer lab use, use of peripherals.
    - Technical assistance and troubleshooting logs

- Analysis of data related to student learning
    - Student data such as state and local assessments; screening, benchmarking and progress monitoring

- Review of evaluation data from staff development activities
    - Professional development days, workshops, and conferences

- Surveys of staff, students, and/or families as appropriate

Recommendations with supporting documentation will be submitted on a regular basis to the Board of Education.