

Clarenceville School District

2014-2019 District Plan Proposal

Oakland Intermediate School District
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District Website

<http://www.clarenceville.k12.mi.us/>

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District Mission

The mission of the Clarenceville School District is to provide individuals a variety of educational opportunities to become lifelong learners and productive members of a changing world.

District Information

Clarenceville School District offers a comprehensive educational program from preschool through twelfth grade that strives to meet the needs of all students. The District maintains a core curriculum that meets or exceeds State and national standards and offers a full complement of fine arts, extracurricular and athletic programs. This southern Oakland County District serves approximately 1900 students from Farmington, Livonia, Redford and a variety of surrounding cities. The District is comprised of one high school, one middle school, and two elementary schools. The student population is diverse with over 70% of our students qualifying for free and reduced. More information may be found at mischooldata.org.

District Vision

The vision of Clarenceville School District is that all students be empowered to face the challenges of the 21st century. We provide our students with an academic foundation designed to promote the skills necessary to be successful in an ever changing and global society: problem solving, effective communication, technical skills, critical and creative thought, an understanding and appreciation of diverse cultures and physical, social, and emotional wellness.

Supported by an enthusiastic faculty, dedicated staff, committed families, and a proud community, we create a safe and caring environment that fosters deep and enduring personal relationships. Within this supportive atmosphere, our students explore their talents and interests, set individual and group goals, and pursue courageous endeavors in all areas of their lives. Cooperative relationships among families, businesses, organizations, community members, and the school provide strong ties which enhance learning beyond the walls of the school

We value a culture of civility where all stakeholders are treated with fairness, are celebrated for their successes, and are respected for their contributions.

We prepare our students to live their lives with resilience, compassion, and above all integrity. As our students move through life we know that they are prepared to act knowledgeably, lead thoughtfully, share generously, and contribute meaningfully.

District Goals for Consideration

Goal #1: Curriculum, Instruction and Student Achievement (#3)

Clarenceville School District will continuously grow as a community of learners integrated with the world where:

- Each member will feel physically, emotionally, and academically safe.
- All learners will experience and achieve a challenging, relevant, high-level learning environment which will prepare them to be lifelong learners, successful in a global society. (#5)(#6)
- All learners will develop into critical and creative thinkers to be adaptable citizens of the future able to embrace change through processing, accessing, designing and managing information. (#5)(#6)

Goal #2: Community Relations (#2)

Clarenceville School District will inspire every community member to invest in our children's future and build participation and ownership in our school district by:

- Promoting honest, trustworthy relationships through open communication.
- Seeking out and respecting each other's diverse ideas, perspectives and abilities. (#1)
- Increasing collaborations with business, government and cultural organizations to make the most of our vast community resources.

Goal #3: Budget/Finance (#7)

Clarenceville School District will develop and implement a proactive financial management model that enables it to make decisions based upon requirements and priorities including:

- Prioritizing needs and acknowledging requirements.
- Investigating renewable energy resources.
- Consolidating services and facilities.
- Providing access to health and wellness.
- Building public support/involvement.

Goal #4: Human Resources/Operations/Technology

To support and enhance educational excellence to develop all students to thrive as global citizens, Clarenceville School District will:

- Attract, develop and retain staff with multiple perspectives who inspire and foster a world class learning community. (#6)
- Build upon and sustain a culturally competent district. (#1)
- Create and maintain exemplary physical and virtual facilities. (#8)
- Utilize cutting edge technology that supports learning and facilitates operations.

Technology Vision

Clarenceville School District is dedicated to using technology to enhance learning, which engages and empowers all learners in a global society in order to foster a productive, innovative, and ethical citizenry.

Development of District Technology Team

Educational Technology Advisory Committee

The mission of this group would be to support the implementation of the Technology Plan by bringing representatives from the Educational Technology and Curriculum Departments together to review, modify, create, and support District policies and procedures. This group would be charged with the following.

1. Examine and change technology-related policies and procedures on a continual basis to address the needs of instruction.
2. Meet regularly to provide the informational and instructional departments an opportunity to collaborate on determining the technology needs of the District.
3. Communicate policies and procedures to staff and parents via departmental representatives.
4. Revise the District Technology Plan as needed.
5. Encourage and support innovative technology use and practices.
6. Assess the technology needs and concerns of staff.
7. Explore and recommend the implementation of emerging technologies.
8. Explore and apply to grant opportunities related to technology needs.
9. Communicate technology “wishes” to potential funding entities (e.g. PTAs).
10. Define professional development needs of the District.
11. Encourage and support professional development and training for all employees.
12. Utilize researched-based information in all work related to instructional technology.

Technology Goals for Consideration

The District’s technology goals would focus on the District goals “to utilize cutting-edge technology that supports learning.” This goal drives our students, families, teachers, and administrators to embrace a visionary plan. Our plan concentrates on ideas for how the classroom will look in the future, and how all learners will thrive in a global society. A critical component of the plan will be to create a multimedia-rich environment of anywhere, anytime learning. The plan also addresses the idea that cutting-edge, innovative technology integration is futile unless a comprehensive plan is in place for ongoing professional development that meets the needs of all of our learners. Professional development will be essential so that the integration of technology in teaching and learning is seamless and based on best practices. The following eight goals specify how the District will support the integration of technology in teaching and learning.

Technology Goal #1: Mobile Student Centered Computing

The district will support all learners having access to technology in an anytime, anywhere, mobile computing environment.

Purpose:

The district will establish an environment that encourages creativity and innovation, facilitates communication and collaboration, supports research and access to digital content, increases critical thinking and problem solving opportunities, and promotes the proper use of information and technology.

Observable Teacher Behaviors:

- Teachers support anytime, anywhere access to digital resources and technology tools.
- Teachers encourage creative thinking and innovation when constructing knowledge.
- Teachers facilitate communication and collaboration in virtual environments.
- Teachers regularly facilitate student access to digital content and multimedia.
- Teachers capitalize on digital resources to promote critical thinking and problem solving.
- Teachers model the proper use of information and technology.

Observable Student Behaviors:

- Students access digital resources and technology tools when needed.
- Students are motivated to think and work creatively and to be innovative in constructing knowledge and solutions to problems.
- Students communicate and collaborate with peers in virtual environments.
- Students access digital content for the informational and research purposes.
- Students utilize technology to think critically and solve problems.
- Students demonstrate the proper use of information and technology to construct and demonstrate knowledge.

Action Steps and Timeline:

Chromebooks, tablet/touch devices and other various handheld computing devices for all learners (2014-2019).

Resources:

- Desktops (some situations are best suited with a fixed desktop, such as a teacher workstation to manage classroom sets of devices).
- Chromebooks
- Tablet/touch devices.
- Online (e.g. cloud or network) collaboration and storage of files.
- District supported student Google accounts.
- Wireless printing.
- Adequate informational technology support for increased technology.
- Professional development associated with changes in practice (e.g. the implementation of tablet devices).

Exemplars/Evidence of Positive Impact on Student Achievement:

- Learning activities are enhanced by the availability of access to devices and information.
- Increased student and teacher motivation and engagement in learning process.
- Evidence of student empowerment (increased ownership of learning).

Evaluation:

- Survey type of feedback from stakeholders (parents, students, and staff).
- Statistics of device usage and network access.

Technology Goal #2: Interactive Multimedia Learning Experiences

All learners will have access to technology that allows for consumption and interaction with a variety of information and multimedia.

Purpose:

Interactive visual and audio peripherals enhances teaching and learning, facilitates a dynamic and engaging presentation of curriculum, and supports learning styles within the 21st century classroom.

Observable Teacher Behaviors:

- Teachers regularly deliver a variety of engaging information and multimedia content.
- Teachers enhance instruction through the integration of various forms of information and multimedia content.
- Teachers are empowered to facilitate student-centered and differentiated instruction related to best practices in teaching and learning.

Observable Student Behaviors:

- Students interact with digital information and multimedia regularly.
- Students engage in the dynamic presentation of content.
- Students enhance their communication skills through the use of digital information and multimedia content.
- Students are empowered to demonstrate their knowledge and process of understanding using digital information multimedia content.
- Students apply skills in using interactive multimedia to extend their knowledge.
- Students are inspired to construct knowledge and collaborate with their peers.

Action Steps and Timeline:

Every classroom and media center will be equipped with a data projector, speakers, and appropriate technology. Educators will have a variety of multimedia options available to them in order to enhance the learning experience in their classrooms.

Resources:

- Data Projectors
- Speakers
- Chromebooks
- Tablets

- Mobile Devices
- SMART Interactive Whiteboards/Interactive TV's (K-2).
- Adequate informational technology support for increased technology.
- On-going professional development for various levels of proficiency.
- Various multimedia platforms available to all educators to use in the classroom.

Exemplars/Evidence of Positive Impact on Student Achievement:

- Instruction is enhanced with the integration of various forms of digital multimedia content.
- The amount of observable student engagement and performance is increased.

Evaluation:

- Survey of teacher usage of multimedia related to the enhancement of instruction.
- Survey of student level of engagement related to consumption and/or creation of multimedia.
- Anecdotal evidence (classroom observations, interviews, artifacts of learning) of student use related to empowerment.

Technology Goal #3: Professional Learning

Professional Learning (PL) will be a top priority for the success of all learners. PL must be integrated within all content areas and grade levels. Also, PL must be ongoing due to the simultaneous learning of how to use technology, the integration of technology in instruction, and the continual emergence of new and improved technologies and practices. PL must be differentiated to address the needs, aptitudes, and styles of adult learners. All staff members will be held accountable for professional learning within a PL structure that engages, encourages, and empowers all learners.

Purpose:

The purpose of professional development is to ensure the success of the integration of technology in teaching and learning. Technology's value is not merely in its inherent capabilities but in its impact, when applied appropriately, on teaching and learning. Also, the integration of technology helps to close the digital, generational, and cultural divides often evident between teachers and students. Closing this divide will enhance delivery and affirmation of the curriculum. Also, collaboration amongst colleagues in an ongoing PL structure inspires innovation, collaboration and collegiality.

Observable Teacher Behaviors:

- Teachers participate in PL that is based on grade level/content area standards AND technology standards (i.e. "integration").
- Teachers attend, apply and sustain skills/practices learned in ongoing PL.
- Teachers define a purpose and apply action research methodologies when exploring technologies.
- Teachers strive to problem solve and troubleshoot technical issues.
- Teachers collaborate to construct knowledge and share ideas.
- Teachers use technology for inquiry-based learning to foster critical thinking.
- Teachers facilitate and inspire student learning and creativity.

- Teachers design and develop digital age learning experiences and assessments.
- Teachers model digital age work and learning.
- Teachers promote and model digital citizenship and responsibility.
- Teachers engage in professional growth and leadership.

Observable Student Behaviors:

- Students demonstrate creativity and innovation using technology.
- Students collaborate and communicate using technology.
- Students conduct research and gather information using technology.
- Students engage in inquiry, project, and problem-based learning.
- Students model digital citizenship and the proper use of technology.

Action Steps and Timeline:

- PL is provided in a variety of ongoing ways that are relevant, hands-on, and convenient for all adult learners.
- PL support meets the ever-changing demands and needs of our adult learners.
- PL is supported by adequate technologies in order to allow staff to put new skills into practice.
- Standards and curriculum determine foci of PL with sensitivity to individual growth.
- Middle School and High School staff will be participating in the TRIG Classroom Readiness professional development opportunity for the 2014-2015 school year to promote “any time, any place, any way, any pace learning through increased technology proficiency.
- Clarenceville Schools will be collaborating with Oakland Schools for technology services and technology integration. The technology integration specialist will work hand-in-hand with teachers and administrators to reinforce the TPACK model within the district.

Resources:

- Adequate instructional PL and technology support.
- Site-based instructional technology integration specialists.
- Full-time media specialists in each building.
- Technology learning academy with convenient contractual time, summer, weekend, and online PL, PLC, and PLN opportunities.
- Lab classrooms for collegial observations.
- Coordination of parents, businesses, and staff for additional PL opportunities.
- Building and district technology groups or "tech teams".
- Contractual time dedicated to professional growth.
- Technology Integration Specialist, Oakland Schools

Exemplars/Evidence of Positive Impact on Student Achievement:

- Teaching and learning is enhanced through the use of technology.
- All learners are engaged in the teaching and learning process.
- All learners are empowered to take pride of ownership in the learning process.
- Student performance on standardized assessments and classroom assessments improves.

Evaluation:

Needs assessments will be used to gauge PL needs of the District, schools, administrators, and grade levels/content area teachers. Rubrics will be used to assess the technology knowledge and level of integration in teaching and learning.

Technology Goal #4: Electronic Resources

Electronic resources and tools to create such resources must be readily available to support a 21st century teaching and learning environment.

Purpose:

As the widespread use of the Internet has informed and connected people, the availability of electronic resources will support the collaborative component of teaching and learning. Electronic resources must be readily available for all learners to access the increasing wealth of on-demand information. Also, technology tools for the creation of electronic resources must be readily available for all learners. Creating and sharing resources fosters a collaborative learning environment.

Observable Teacher Behaviors:

- Teachers regularly access, create, and manage digital resources for teaching and learning.
- Teachers participate in a collaborative environment with colleagues across the District, county, state, nation, etc.
- Teachers increasingly rely on digital resources more than paper resources.

Observable Student Behaviors:

- Students access electronic resources for information and research at any time, from anywhere.
- Students store and retrieve the information they have gathered while researching (e.g. cloud, network).
- Students access and interact with digital books, textbooks, and class resources (provided by the District and/or created by learners).
- Students access course management modules or online versions of their classrooms at any time, from anywhere.
- Students use electronic tools to build electronic knowledge bases that are accessible at any time, from anywhere.

Action Steps and Timeline:

- New District website with the opportunity for educators to create personal websites (2014)
- Provide and support published and/or intra-District created electronic resources (ongoing).
- Provide and support digital books, textbooks, and resources (ongoing).
- Provide and support electronic tools for the creation of electronic resources (ongoing).

Resources:

- Subscription-based databases.
- Electronic books, textbooks, and resources specific to grade-levels and content areas.

- Video sharing site (e.g. You Tube, Vimeo).
- Atlas Rubicon (i.e. an online collaborative curriculum database).
- Tools allowing for the creation and publication of resources (e.g. Teacher website, Moodle, Edmodo, Wikis).

Exemplars/Evidence of Positive Impact on Student Achievement:

Student performance on assessments, student reflection on using digital resources, and anytime, anywhere access.

Evaluation:

- Gathering feedback on availability, ease of use, and impact on student achievement.
- Monitoring level of tools used in the creating of resources.

Technology Goal #5: Bring Your Own Device (BYOD)

All learners will be encouraged, supported, and empowered to apply their personally owned technology in teaching and learning.

Purpose:

Encouraging and supporting BYOD will increase opportunities to integrate technology. Also, encouraging a BYOD learning environment helps to expedite the attainment of our goal of creating an anywhere, anytime, computing environment. Allowing learners to use their own technology will promote a sense of empowerment in teaching and learning.

Observable Teacher Behaviors:

Teachers model, support, and encourage the appropriate use of personally-owned devices in teaching and learning.

Observable Student Behaviors:

Students use technology to enhance their learning, including increased interaction amongst peers and teachers.

Action Steps and Timeline:

- Establish a BYOD committee comprised of district administration and educators to create policy, procedures, and expectations.
- Develop District policy with grade-level criteria to support and encourage BYOD (Fall 2014).
- Educate staff, students and parents on the intent, concept, and policy of BYOD (Fall 2014).
- Make devices available for students that do not have their own device (2014-2019).
- Maintain a network infrastructure, policies, and culture that support BYOD (ongoing).

Resources:

- BYOD Policy.
- Communication modes to educate staff, students, and parents.
- District provided devices readily available in classrooms.

- Exemplars/Evidence of Positive Impact on Student Achievement:
- Students and teachers engaged in teaching and learning.
- Technology used anytime, anywhere.

Evaluation:

- Data from state, district and teacher assessments.
- Feedback from students, parents, and teachers on frequency and effectiveness.
- Measurement of disciplinary referrals and actions.

Technology Goal #6: Curriculum Integration

Using the International Society for Technology in Education National Educational Technology Standards (ISTE NETS), and the Michigan Educational Technology Standards (METS) technology will be integrated into all K-12 curricula. Instructional stakeholders will contribute to developing and updating technology-integrated curriculum maps and resources. Teachers will regularly integrate technology as defined within their respective curriculum. Appendix F provides examples of what the ISTE NETS may look like at specific grade levels. The state and national technology standards will be integrated into district Atlas curriculum maps.

Purpose:

- To provide students, parents, and teachers with clearly defined learning goals in all grade level and content area curricula.
- To promote and support contributions to curriculum due to the ongoing growth and emergence of viable technologies.
- To efficiently and effectively support teachers in integrating technology by focusing on common learning goals.

Observable Teacher Behaviors:

- Teachers demonstrate awareness and knowledge of their respective technology integrated curriculum.
- Teachers contribute to their respective curriculum maps to maintain technology integration relevancy.
- Teachers demonstrate knowledge of and the use of technological resources and tools.
- Teachers demonstrate best pedagogical practices related to technology integration.
- Teachers demonstrate the blending of content, pedagogy, and technology (i.e. integration).
- Teachers model the use of appropriate technology for a specified task or problem.
- Teachers share and collaborate with colleagues to improve technology integration and teaching and learning.

Observable Student Behaviors:

- Students will be aware of the instructional purpose of using technology in learning (i.e. as opposed to the common idea of technology being a novelty or means for entertainment).
- Students use technology in productive ways to improve learning.

Action Steps and Timeline (ongoing):

District

- Support professional development so all technology goals can be met.
- Ensure the availability and accessibility of technological tools.
- Newly acquired instructional resources will encompass instructional technology needs of students and teachers.
- Provide training for teachers to access and contribute to digital curriculum resources.
- Develop and/or revise curriculum maps for all grade level and content areas to ensure common “road maps” for teaching and professional development purposes.

Building

- Buildings must develop a commonality of language and technological norms.
- Buildings must integrate short term and long-term technological goals.
- Building goals must be focused on professional growth.

Teachers

- Provide educational technology learning experiences and resources in Atlas curriculum maps.
- PLC/T need to focus a portion of their meeting time on enmeshing and marrying curriculum and technology based on available resources.
- Create integrated lessons and activities.
- Incorporate a technology component in their yearly goals.
- Reflect on lesson plans and instruction to ensure that instructional technology is integrated.

Resources:

- Online repository for curriculum.
- Teacher access to digital resources, including training on how to access resources.
- Mandated time for teachers to review and collaborate on curriculum.
- Training and support for teacher-leaders in curriculum development.

Exemplars/Evidence of Positive Impact on Student Achievement:

- The integration of relevant instructional technology is explicitly stated in curriculum maps.
- Students and teachers are using instructional technology within their teaching and learning.
- Curriculum will be updated on a frequent (ideally annual) basis and available electronically.
- Students will express their understanding of content through digital media.

Evaluation:

- Bi-annual review of curriculum maps.
- Teacher reflection on performance/goals (embedded within evaluation process).
- Meeting records from curriculum development/review sessions.
- Student reporting on integration of curriculum within classroom.
- Note: Specific information on Curriculum is provided on page 17.

Technology Goal #7: Blended Learning

Blended Learning will allow for the delivery of, access to, and interaction with content in a convenient way that will promote learning.

Purpose:

The purpose of blended learning is to allow for the implementation of a more relevant and individualized education for students. Blended learning reaches and teaches students more effectively with both the classroom and online learning experience.

Observable Teacher Behaviors:

- Teachers work within a flexible schedule to meet the needs of online learning.
- Teachers facilitate the online learning environment from offsite locations.
- Teachers facilitate classroom activities in an online learning environment.
- Teachers will be accessible to students at times beyond the typical school day.

Observable Student Behaviors:

- Students work within a flexible schedule to meet their personal needs.
- Students participate in the online learning environment from offsite locations.
- Students access teacher assistance beyond the typical school day.
- Students are engaged in learning.
- Students are empowered to take pride of ownership in their learning.

Action Steps and Timeline:

- Create and support an online learning space (e.g. Moodle, Edmodo, various Google Apps such as Drive, Sites and Hangouts).
- Explore the “flipped classroom” concept.
- Examine backchanneling (e.g. TodaysMeet, Twitter)

Resources:

- Application(s) that provide an online learning environment.
- Year-round scheduled courses for credit recovery and alternative credit acquisition.
- Computing devices for students enrolled in online courses.
- Online learning labs (in lieu of providing students devices).

Exemplars/Evidence of Positive Impact on Student Achievement:

Improvement of student achievement due to online class work.

Evaluation:

Parent feedback, student feedback, teacher feedback, and student achievement data.

Technology Goal #8: Innovation

Innovation in the best practices of technology integration will be supported and encouraged.

Purpose:

Cultivating and maintaining an environment that provides structural support to be creative and innovative contributes to-

- Improving best practices.
- Collegial learning across the District.
- Creating an opportunity for action research.
- Incentives supported for professional growth and learning.

Observable Teacher Behaviors:

Teachers explore, pioneer, and share approaches, tools and methods to improve teaching and learning.

Observable Student Behavior:

- Students seek out new methods of critical thinking and expression of learning.
- Students contribute to the exploration, pioneering, and sharing of new approaches, tools, and methods for learning.

Action Steps and Timeline:

- Develop and support a network for innovative practices to be cataloged and shared (beginning Fall 2015).
- Provide a formal learning and sharing opportunity (Fall 2015).

Resources:

- Per pupil or per staff member allocation of funds (may be allocated to grade levels, departments, or buildings) for piloting emerging technologies and/or attending conferences.
- District level support for networking innovative practices.
- Support from Oakland Schools Technology Integration Specialist.

Exemplars/Evidence of Positive Impact on Student Achievement:

- Teaching is enhanced through the integration of innovative practices.
- Student engagement correlates to an increase in academic achievement.
- Teachers and students are empowered to apply technology in innovative ways to solve problems.

Evaluation:

Innovative practices will be evaluated for the impact on enhancing instruction, engaging students, and empowering students to take pride of ownership in learning.

Exemplars/Evidence of Positive Impact on Student Achievement:

- Growth will be seen across the year in new, unpredictable ways.
- Learning and growth will happen in ways that they had not previously.

- This growth could be, and not limited to, students learning, teaching techniques, devices, culture, collaboration, PLC/T productivity, sharing, and wider integration of resources and methods that support student success.

Evaluation:

- Identifiable cadre of staff that is technologically innovative
- Growth tied to all applicable evaluation processes.

Curriculum

Integration

Using the International Society for Technology in Education National Educational Technology Standards (ISTE NETS), and the Michigan Educational Technology Standards (METS) technology will be integrated into all K-12 curricula. Instructional stakeholders will contribute to developing and updating technology-integrated curriculum maps and resources. Teachers will regularly integrate technology as defined within their respective curriculum. Appendix B provides examples of how the ISTE NETS may be integrated at specific grade levels.

To improve the academic achievement, including technology literacy, of all learners, an integrated curriculum will include the following teaching and learning strategies:

- Students construct knowledge through a variety of processes, such as social networking, human interaction and differentiated learning environments.
- Students will select from a variety of tools, processes, and information sources that will enhance their own learning.
- Staff and students will engage in responsible and appropriate behaviors when using technology.
- Technology tools will be made available anywhere, anytime, for and by everyone, and will help to eliminate barriers for all learners.
- Curriculum will be designed to offer more global opportunities for creative and collaborative problem solving.
- Students will access a collaborative global community of learners, using tools such as online learning, podcasts, wikis, social networking, etc.
- Innovation will be practiced in partnership with community resources such as local industries and the ISD to keep current with global technology trends.
- All District entities will share the same vision for the integration of technology in teaching and learning.
- The District will have structures in place to support innovative practices that increase student and staff engagement. These innovations are continuously assessed and supported.
- Students and staff will have access to curricular materials and resources.
- Teachers will become facilitators as students are provided opportunities for increased ownership of their own learning.
- Creative thinking will be encouraged throughout the use of technology. Students will understand and apply problem-solving conventions within systems, applications, and the learning of new technologies.

- Students will demonstrate knowledge after locating, organizing, analyzing, evaluating, and synthesizing information from a variety of sources.

Student Achievement

Research based strategies will be used to integrate technology into curricula and instruction to improve student academic achievement. The process and timeline for the development of integrating technology is provided below.

Process Description for Curriculum Integration

The process increases the degree to which instructional technology is embedded within teaching and learning is integrated into our curriculum development process. Our belief is that the integration of technology into instruction must be lock step with the creation of curriculum and teaching practices. To create a separate process for the development of technology integration moves toward the idea of technology as an add-on to learning. Therefore, the most accurate “description on how technology will be integrated into curriculum and instruction” (Section 4, Tech Plan Guidelines, Michigan Department of Education) would be to describe our fundamental approach to developing curriculum/instruction.

Essentially, this is a 5-step process:

1. Adoption of specific content and skill standards.
2. Construction of curriculum, through the use of curriculum mapping software.
3. Development of assessments that measure the degree to which learners understand the curriculum.
4. Identification of instructional methods meeting the needs of learners, which include integration of technology.
5. Consideration of environmental and learning needs including interventions, classroom culture, student culture, etc.

Ideally, a small team of teachers that share common content accomplishes these 5 steps. Once the initial “footprint” for a course is developed, the team focuses their efforts on analysis of data (summative and formative) to improve both teaching and learning.

Technology Delivery

For students who would prefer to take advanced coursework not offered within CSD, online courses are offered. We have a history of utilizing Michigan Virtual High School for students who need courses that are not offered in our traditional schedule. Similarly, CDS now utilizes Plato for credit recovery at the high school level. In our second year of use, we continue to study the effectiveness of this model (computer assisted) of learning. During the second and third trimesters of the current school year, all of our high schools offered credit recovery labs in a small number of core courses.

Currently, CSD utilizes several means to provide "distance learning" to our students and teachers. Our high schools have begun to initiate blended course offerings a limited number of courses. For example, students who elect to take Advanced Computer Applications can do so in a blended format where they attend school for 2 days a week and work from home for the other 3 days.

Similarly, we hope to offer a digital literacy course, in a blended or completely online format, to students next year. All students in our high schools utilize an online planning tool to complete their EDP's and select their courses for high school. Much of this work is done at home, where the family and student can work together and selecting an educational path that will be best meet the future needs the student.

In many of our classrooms, teachers use web 2.0 tools to help extend learning beyond the school walls. Some of our secondary classrooms have begun utilizing social media sites such as Edmodo to facilitate an online classroom/dialogue. While in the experimentation state, our teachers are finding that connecting with students beyond the four walls of the classroom and meeting them where they are as communicators is paying dividends in increased engagement.

A very limited number of our teachers have begun to engage learners through the idea of "flipped" instruction, where students explore the topic prior to coming into the classroom and participate in more guided practice with concepts during their face-to-face meetings. While it is common for teachers to suggest to students that they utilize digital resources to engage with the content, it is often a postscript to the learning episode. "Flipping" shows promise for those students with both access and motivation to prepare for class meetings.

Parent Communications & Community Relations

The District Technology Plan will be disseminated to the community initially and continuously through the following measures:

- Posted on district website and all building websites.
- Individual educator's web presence.
- Share through social media including Facebook and Twitter.
- Press release to local media.
- Presentation at Clarenceville Schools Board of Education meeting.
- Presentation at Clarenceville Schools District parent meetings.

Parents and community members will be invited to participate in a technology-planning meetings in which thoughts and ideas about the eight technology goals are gathered through a parent focus group. The following represent requested parent/community feedback and contributions to our goal areas:

Mobile Computing

What are the tools and applications that you'd like to see your children using in their learning?

Interactive Multimedia Learning Experiences

Describe the classroom of the future, what do you see in that classroom?

Professional Development

What would it "look like, sound like, feel like, taste like, smell like" if technology was deeply embedded into teaching and learning?

Electronic Resources

Describe how students should access information about their subjects.

BYOD

What do you think the school should consider when making policies about students bringing in their own devices?

Curriculum

What would it “look like, sound like, feel like, taste like, smell like” if technology was deeply imbedded into teaching and learning?

Innovation

When describing the future state of technology within CSD what phrases come to mind?

Collaboration

- Representatives from various departments will collaborate on the implementation of the following initiatives:
- Update Current Operating System and current office applications.
- Provide computers for ESL (English as a Second Language) learners.
- Enhance use of technology in delivering curriculum.
- Offer tools addressing multiple digital learning styles (e.g. audio, kinesthetic, visual).
- Provide online learning opportunities.
- Seek partnerships within global community (i.e. local museums, libraries, universities, businesses).
- Offer opportunities for earning community college credit in high school classes – connecting and establishing programs with community colleges (early start college for those seeking a 2 year degree, retraining, or employability skills).
- Establish internships for students in technology-related industries.
- Explore entrepreneurial high school with curriculum accessed on line.
- Seek adaptive tools/technologies to provide employability skills during and beyond high school and the traditional classroom environment.
- Offer blended courses (online and direct instruction) that provide opportunities for dual enrollment (high school/college credit).
- Work with intermediate school district to provide online courses to "non-traditional students" (WAY, OOA, K-8 home schooling audience).

Professional Learning

Professional Learning (PL) will be a top priority for the success of all learners. PL must be integrated within all content areas and grade levels. Also, PL must be ongoing due to the simultaneous learning of how to use technology, the integration of technology in instruction, and the continual emergence of new and improved technologies and practices. PL must be differentiated to address the needs, aptitudes, and styles of adult learners. All staff members will be held accountable for professional learning within a PL structure that engages, encourages, and empowers all learners.

PL needs, design, planning, implementation, delivery, and evaluation will be a collaborative effort amongst various stakeholders. This collaboration will include one or more of the following stakeholders in any given PL event or initiative.

- All PreK-12+ Schools
- All PreK-12+ Grade Levels
- Principals
- All Content Areas
- Media Specialist Department
- Instructional Technology Specialists (if any on staff)
- EdTAC
- Information Technology Department
- Special Education Department
- Career Technology Education Department
- Eighth Grade Technology Classes
- Title Funded Initiatives
- Common Core Related Initiatives
- District Instructional Plan Initiatives (School Improvement Plan)
- Parent Teacher Associations
- Intermediate School Districts
- State and National Organizations

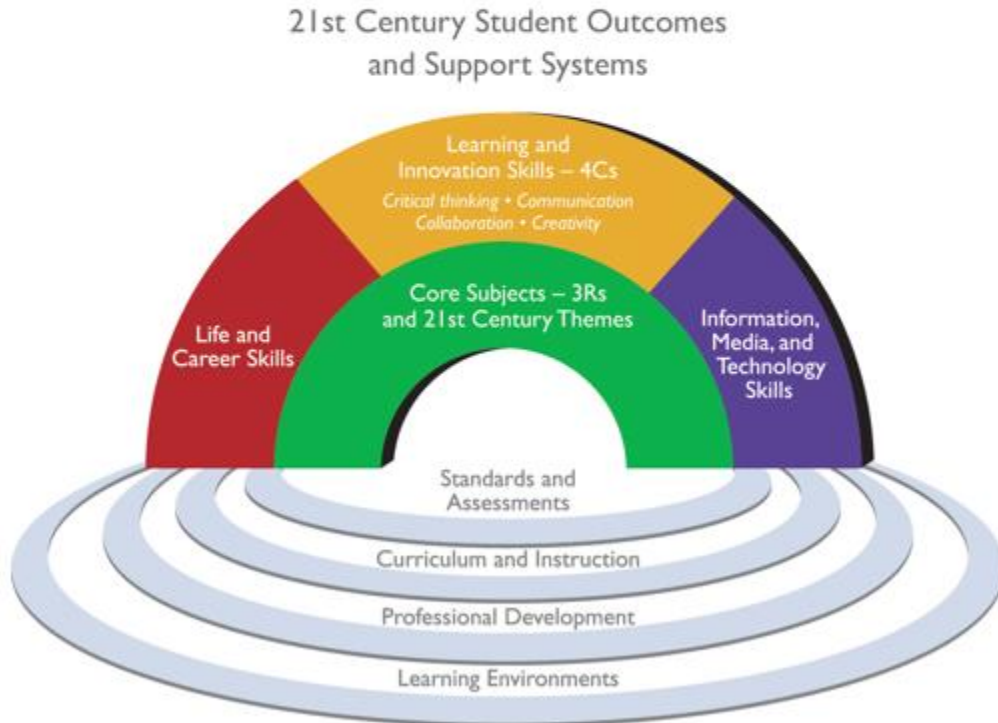
Our Technology Plan's essence for an integrated approach to instructional technology can be summarized by the visual found at the [Partnership for 21st Century Skills' website](#). Note the student outcomes (colored rainbow) and support systems (semi-circles).

Framework for 21st Century Learning



The Framework presents a holistic view of 21st century teaching and learning that combines a discrete focus on 21st century student outcomes (a blending of specific skills, content knowledge, expertise and literacies) with innovative support systems to help students master the multi-dimensional abilities required of them in the 21st century.

The key elements of 21st century learning are represented in the graphic and descriptions below. The graphic represents both 21st century skills **student outcomes** (as represented by the arches of the rainbow) and 21st century skills **support systems** (as represented by the pools at the bottom).



Professional Learning Strategies

The following PL strategies ensure that all staff and administrators are supported in the appropriate integration of technology related to the goals of this Technology Plan. All PL support is based on the principles of [Technological Pedagogical Content Knowledge \(TPACK\)](#), [Universal Design for Learning \(UDL\)](#), and the [ISTE NETS](#) for administrators, teachers, coaches, and students.

Media Specialists Supporting the Technology Plan

Media specialists support a culture of inquiry learning among all students and staff. Ensuring that the media center is a valuable learning space and that the media collection fully supports the learning needs of the community means that there are certain duties specific to the media center. However, in order to promote learning anytime, anywhere, media specialists need to expand the

idea of the media center to every classroom and they need to be available to work with students and staff everywhere

Role (School-wide):

- Encourages and supports a culture of inquiry among all members of the learning community, believing that developing inquiry skills and thinking will empower lifelong learners.
- Promotes a love of reading and encourages lifelong reading habits.
- Promotes reading for a variety of purposes, including for information, for enjoyment, for deepening understanding.
- Guides learners in developing skills and thinking processes necessary for gathering information and turning it into knowledge and understanding.
- Shares the vision of comprehensive integration of technology to promote excellence and support transformational change in FPS.
- Assists teachers in selecting and using technology effectively for assessing student learning, differentiating instruction, and providing rigorous, relevant, and engaging learning experiences for all students

- Models and promotes digital citizenship.
- Demonstrates professional knowledge, skills, and dispositions in content, pedagogical, and technological areas as well as in adult learning and leadership and continuously
- deepens knowledge and expertise.
- Creates and supports effective digital-age learning environments to maximize the learning of all students based on research-supported practice.

Responsibilities (School-wide)

- Creates and maintains an online presence that promotes development of information, visual, and digital illiteracies.
- Coaches teachers in integration of inquiry thinking.
- Co-teaches, with classroom teachers, inquiry skills, dispositions, and habits of mind.
- Co-teaches, with classroom teachers, selection and evaluation and use of information sources.
- Coaches teachers in integration of standards-based technology.
- Co-teaches, with classroom teachers, appropriate, effective, ethical use of technology.
- Meets the PL needs of staff at the time of need.
- Models use of technology to enhance learning environments.
- Collaborates with other technology-related personnel within CSD for research and development, curriculum development, PL, and other District initiatives.

Lab Classrooms

Lab classrooms provide an opportunity to observe the technology integration within a colleague's classroom. Teachers and other staff members are invited into the classroom for a

structured observation of the integration of the technology. Visits may also be carried out virtually.

Lab classrooms function based on an individual or groups need to improve practices. Observations occur in model classroom to learn more about a specific tool, strategy, skill or method involving technology integration. Lab classrooms may be determined by administration recommendation, and/or evidence of successful innovative practices.

Resources and Actions:

- Adapt the current CSD model for lab classrooms.
- Online catalog of classrooms to observe.
- Substitute teachers for observations and debriefing.
- Time before and after lesson to brief.
- Incentive system for lab classroom teacher to host.

Typical process for a lab classroom observation:

1. Sign up to observe.
2. Decide on focus. Share with lab classroom teacher before observation.
3. Observe.
4. Debrief afterwards
5. Implementation by visiting teachers
6. Time to debrief after implementation in the visiting teacher classroom

Technology Conference

Professional learning opportunities require flexible and convenient structures to cater to varying interests, aptitudes, preferences, and schedules. Offering summer, evening, weekend, small and large chunks of time, and a multitude of formats and topics will allow learners to participate in relevant and worthwhile PL. Any conference objectives will be tied to continuous growth.

Resources

- Facility that is tech-friendly (both hardware & infrastructure).
- CSD and outside presenters solicited to facilitating PL.
- Variety of presenters (across all levels, content areas, and from outside district).
- Differentiated menu (beginner to advanced).
- IT on site (for technical support).
- Community sponsors (as a resource for attendee incentives).
- Financial support for necessary materials.
- A panel that assists in choosing presenters (EdTAC).
- Survey for staff to reassess the baseline menu of PL.
- Collect feedback on overall and specific aspects and PL.
- Continuous Training (online/person).
- Develop follow-up plan for teachers to receive support on development/implementation of technologies learned (long-term support).

Timeline for Professional Development

- June 2014 - Administration convene with the Instructional Technology Advisory Committee to outline short and long-term goals.
- Summer 2014 - Offer PL related to initial priorities of technology plan.
- August 2014 - Large scale PL provided to address the needs of staff in the following:
 - Mobile Computing
 - Interactive Multimedia
 - BYOD
 - Electronic Resources
 - Google Apps
 - Creating and Developing a Web Presence
 - Apple TV and iPads in the Classroom
- Fall 2014 and ongoing - Technology Specialists assess respective schools with a technology skill needs assessment and to identify additional necessary PL.
- Summer 2015 - Summer PL opportunities offered.

Supporting Resources

District policies

- Technology and Network Acceptable Use Policy (AUP).
- Web Page Development Procedures.
- Student Code of Conduct.
- Annual updates of Copyright Laws, Fair Use, and interpretation of the use of Creative Commons designated content.

Manuals and printed materials

- Printable online training materials.
- Printable software and hardware manuals.

Video lending library or REMC access

- Community Library.
- Oakland Schools Cable Casting Video Production.
- Informational school websites.
- Staff maintained wikis.
- District/school websites and wikis with staff PD resources.

Instructional/Training software

- Webinars and video conferencing, including locally hosted through Cisco's WebEx
- Technology (or similar tool).
- Video Tutorials including locally produced training tutorials.
- Oakland Schools Technology Integration website- www.ostsedtech.weebly.com

Online subscription services

- Discovery Streaming or similar video library.
- National and state subscriptions to professional online magazines, organizations, listservs, blogs, etc.
- Online data servers: Pearson Inform, NWEA, DIBELS

ISD, RESA, REMC support

- Oakland ISD supported technologies (Moodle, WordPress, SMART board etc.)
- Oakland ISD PD Learning Opportunities.
- Oakland ISD Consultant.

Higher education involvement/support

- Career Technical Education (CTE) partnerships.
- University/ College partnerships.
- Research-based best practices.

Other resources

- Online resources.
- Curriculum maps indicating technology proficiency.

Infrastructure, Hardware, Technical Support, and Software

Current Status

The District owns 4 buildings.....

In supporting the District's Technology Plan, the District's Information Technology Department follows 4 categories established by the International Society of Technology in Education (ISTE) Technology Support Index. This TSI includes areas of Equipment Standards, Staffing and Processes, Professional Development and Enterprise Management. The TSI provides an indication of low efficiency, moderate, satisfactory or high efficiency with a dollar valued associated with a cost to implement and maintain a high efficiency to maximize capital investments. Our District scores

The 2014-2016 Technology Plan

Learning Goals

- Teachers will provide access, opportunity and instruction where students participate in technology based learning activities which help to do a better job teaching the core curriculum.
- Technology will become a commonly used resource for teaching, learning and assessment throughout the district.

Infrastructure Goals-- To Reach Our Learning Goals, the Technology Plan Is Designed:

- To provide facilities for outreach and communication on a scope from the classroom to the home to the world-at-large.

- To provide an infrastructure that supports the systematic integration of technology skills into curriculum areas in all grades using Information Literacy Skills as a guiding framework.
- To provide timely maintenance, repair and upgrade of Clarenceville technology resources.

For the purposes of this plan, “infrastructure” is defined as the hardware, software, network, telephone, public address and Internet resources required to support teaching, learning and assessment. The infrastructure portion of the plan provides a timeline for implementation in the form of an annotated checklist. Successful completion of each list item and its accompanying comments will serve as evaluation for the infrastructure section of the technology plan.



Technical Support Staff

The Information Technology Department will be made up of 80 employees utilized through Oakland Service. Associated directly with Clarenceville schools will be one IT leadership member, a Senior technology support specialist and a Technology Integration specialist.

Increased Access

The technology-related needs of all staff and students, which includes our high-need, high-poverty, and special education populations, are routinely considered when implementing and supporting technologies. For example, our Title funded program and Special Education personnel are involved in processes and decision-making that impact their staff and students. We will continue to collaborate with such stakeholders to provide access for all of our schools, staff, and students.

Funding and Budget

Coordination of Resources

- District funding of technology resources will be supplemented through partnerships with local, state, and federal agencies and technology education organizations and commercial grant opportunities. The following are potential partnerships to procure additional funding and technology resources:
- Local partnerships with ISDs (e.g. Oakland School's server-based applications, OS internet service).
- State partnerships with organizations (e.g. MACUL (Michigan Association of Computer Users in Learning) training and grant opportunities).
- National partner organizations (e.g. ISTE (International Society of Technology in Education) resources and training opportunities).
- State and Local purchasing pools (e.g. REMC (Regional Educational Media Center) pricing for technology hardware).
- Commercial grant opportunities encouraged for staff to apply (e.g. Best Buy technology grants for education).

Evaluation

The district will use an external evaluation provider to conduct a summative evaluation of the technology plan implementation. The planning for this evaluation will begin when the plan is approved and the final evaluation report will be produced at the end of the technology plan's life cycle (January 2019). As part of the summative plan, yearly updates will be requested for the purpose of reporting, to administration, community and staff, the progress made on implementation of the technology plan.

While the design of the evaluation will not be formalized until the plan is approved and an external evaluation provider is selected, there will be recommended evaluation measures and data points included as part of the evaluation. The following is a list of specific data points that should be monitored:

- Utilization of the wireless networks by staff, students and guest.
- Inventory of devices available for student use.
- Inventory of peripheral devices in classrooms for teacher/student use.
- Staff aptitude with the integration of technology.
- Number of staff participating in technology training offered by the district.
- District time allocated to the participation of staff in technology training.
- Number of district curriculum maps that specify technology integration as part of core learning.

- Number and enrollment within blended and online coursework.
- Community and student satisfaction on technology use/integration.

The following evaluation measures will be recommended:

- Annual staff instructional technology survey.
- Annual review of information technology work orders, including customer satisfaction reports.
- Focus group sessions related to specific instructional technology subjects with staff and community.
- Annual audits of information technology processes and performance.

[ISTE Models and Matrixes](#) for Evaluation Planning

[ISTE Client Services](#) for Planning and Evaluation

[ISTE Seal of Alignment](#) Resources for Readiness, Proficiency, and Mastery

Appendix A: **District AUP**

Appendix B - Curriculum Integration Examples

The ISTE NETS for Students include six standards for technology integration into curriculum. First, an overview of each standard is provided for reference. Next, each standard is described in detail with grade specific examples provided (e.g. By the end of Grade 2 each student will).

Overview of ISTE NETS for all K-12 Students

1. *Creativity and Innovation:* Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
2. *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.
3. *Research and Information Fluency:* Students apply digital tools to gather, evaluate, and use information.
4. *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.
5. *Digital Citizenship:* Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
6. *Technology Operations and Concepts:* Students demonstrate a sound understanding of technology concepts, systems, and operations.

Detailed ISTE NETS and Grade Level Examples

The list below includes currently available District technologies and technologies we plan to explore for implementation in specific grade levels.

1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

- a. Apply existing knowledge to generate new ideas, products, or processes.
- b. Create original works as a means of personal or group expression.
- c. Use models and simulations to explore complex systems and issues.
- d. Identify trends and forecast possibilities.

By the end of Grade 2 each student will:

- use a variety of digital tools (e.g., word processors, drawing tools, simulations, presentation software, graphical organizers) to learn, create, and convey original ideas or illustrate concepts.

By the end of Grade 5 each student will:

- produce a media-rich digital project aligned to state curriculum standards (e.g. fable, folk tale, mystery, tall tale, historical fiction),
- use a variety of technology tools and applications to demonstrate his/her creativity by creating or modifying works of art, music, movies, or presentations, and participate in discussions about technologies (past, present, and future) to understand these technologies are the result of human creativity.

By the end of Grade 8 each student will:

- apply common software features (e.g., spellchecker, thesaurus, formulas, charts, graphics, sounds) to enhance communication with an audience and to support creativity.
- create an original project (e.g., presentation, web page, newsletter, information brochure) using a variety of media (e.g., animations, graphs, charts, audio, graphics, video) to present content information to an audience, and illustrate a content-related concept using a model, simulation, or concept mapping software.

By the end of Grade 12 each student will:

- apply applications (e.g. built-in thesaurus, templates, styles) to redesign the appearance of word processing documents, spreadsheets, and presentations.
- create a web presence (e.g. personal publishing, commenting), and use a variety of media and formats to design, develop, publish, and present projects (e.g., newsletters, web sites, presentations, photo galleries).

2. 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.

- A. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
- B. Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
- C. Develop cultural understanding and global awareness by engaging with learners of other cultures.
- D. Contribute to project teams to produce original works or solve problems.

By the end of Grade 2 each student will:

- use a variety of digital tools (e.g., word processors, drawing tools, simulations, presentation software, graphical organizers) to learn, create, and convey original ideas or illustrate concepts.
- work together when using digital tools (e.g., word processor, drawing, presentation software) to convey ideas or illustrate simple concepts relating to a specified project, and use a variety of developmentally appropriate digital tools (e.g., word processors, paint programs, digital stories) to communicate ideas to classmates, families, and others.

By the end of Grade 5 each student will:

- produce a media-rich digital project aligned to state curriculum standards (e.g. fable, folk tale, mystery, tall tale, historical fiction),
- use a variety of technology tools and applications to demonstrate his/her creativity by creating or modifying works of art, music, movies, or presentations.
- participate in discussions about technologies (past, present, and future) to understand these technologies are the result of human creativity.
- use digital communication tools (e.g., e-mail, wikis, blogs, IM, chat rooms, videoconferencing, Moodle, Blackboard) and online resources for group learning projects, identify how different software applications may be used to share similar information, based on the intended audience (e.g., presentations for class mates, newsletters for parents), and use a variety of media and formats to create and edit products (e.g. presentations, newsletters, brochures, web pages) to communicate information and ideas to various audiences.

By the end of Grade 8 each student will:

- use digital resources (e.g., discussion groups, blogs, podcasts, videoconferences, Moodle, Blackboard) to collaborate with peers, experts, and other audiences.
- use collaborative digital tools to explore common curriculum content with learners from other cultures.

- identify effective uses of technology to support communication with peers, family, or school personnel.

By the end of Grade 12 each student will:

- identify various collaboration technologies and describe their use (e.g., desktop conferencing, webinar, listserv, blog, wiki).
- use available technologies (e.g., desktop conferencing, e-mail, videoconferencing, instant messaging) to communicate, with others on a class assignment or project.
- collaborate in content-related projects that integrate a variety of media telecommunications tools (e.g., web based discussion boards, online groups, interactive web sites, videoconferencing print, audio, video, graphic, simulations, and models).
- describe the potential risks and dangers associated with online communications, and use technology tools for managing and communicating personal information (e.g., finances, contact information, schedules, purchases, correspondence).

3. Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information.

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

By the end of Grade 2 each student will:

- interact with Internet based resources, use digital resources (e.g., dictionaries, encyclopedias, graphs, graphical, and organizers, search engines) to locate and interpret information relating to a specific curricular topic, with assistance from teachers, school library media specialists, parents, or student partners.

By the end of Grade 5 each student will:

- identify search strategies for locating information with support from teachers or school library media specialists.
- use digital tools to find, organize, analyze, synthesize, and evaluate information.
- understand and discuss that web sites and digital resources may contain inaccurate or biased information.
- understand that using information from a single Internet source might result in the reporting of erroneous facts and that multiple sources should always be researched.

- produce a media-rich digital project aligned to state curriculum standards (e.g. fable, folk tale, mystery, tall tale, historical fiction).

By the end of grade 8 each student will:

- use a variety of digital resources to locate information, evaluate information from online information resources for accuracy and bias.
- understand that using information from a single Internet source might result in the reporting of erroneous facts and that multiple sources should always be researched, identify types of web sites based on their domain names (e.g., edu, com, org, gov, net).
- employ data-collection technologies (e.g., probes, handheld devices, GPS units, geographic mapping systems) to gather, view, and analyze the results for a content-related problem.

By the end of grade 12 each student will:

- develop a plan to gather information using various research strategies (e.g., interviews, questionnaires, experiments, online surveys).
- identify, evaluate, and select appropriate online sources to answer content related questions, demonstrate the ability to use library and online databases for accessing information, distinguish between fact, opinion, point of view, and inference.
- evaluate information found in selected online sources on the basis of accuracy and validity.
- evaluate resources for stereotyping, prejudice, and misrepresentation,
- understand that using information from a single internet source might result in the reporting of erroneous facts and that multiple sources must always be researched.
- research examples of inappropriate use of technologies and participate in related classroom activities (e.g., debates, reports, mock trials, presentations).

4. 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.

- A. Identify and define authentic problems and significant questions for investigation
- B. Plan and manage activities to develop a solution or complete a project.
- C. Collect and analyze data to identify solutions and/or make informed decisions.
- D. Use multiple processes and diverse perspectives to explore alternative solutions.

By the end of Grade 2 each student will:

- explain ways that technology can be used to solve problems (e.g., cell phones, traffic lights, GPS units).
- use digital resources (e.g., dictionaries, encyclopedias, search engines, web sites) to solve developmentally appropriate problems, with assistance from teachers, parents, school media specialists, or student partners.

By the end of Grade 5 each student will:

- use digital resources to access information that can assist in making informed decisions about everyday matters (e.g., which movie to see, which product to purchase).
- use information and communication technology tools (e.g., calculators, probes, videos, DVDs, educational software) to collect, organize, and evaluate information to assist with solving problems.
- use digital resources to identify and investigate a state, national, or global issue (e.g., global warming, economy, environment).

By the end of grade 8 each student will:

- use databases or spreadsheets to make predictions, develop strategies, and evaluate decisions to assist with solving a problem.
- evaluate available digital resources and select the most appropriate application to accomplish a specific task (e. g., word processor, table, outline, spreadsheet, presentation program)
- gather data, examine patterns, and apply information for decision making using available digital resources, and describe strategies for solving routine hardware and software problems.

By the end of grade 12 each student will:

- use digital resources (e.g., educational software, simulations, models) for problem solving and independent learning,
- analyze the capabilities and limitations of digital resources and evaluate their potential to address personal, social, lifelong learning, and career needs.
- devise a research question or hypothesis using information and communication technology resources, analyze the findings to make a decision based on the findings, and report the results.

5. Digital Citizenship

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

- A. Advocate and practice safe, legal, and responsible use of information and technology.

- B. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
- C. Demonstrate personal responsibility for lifelong learning.
- D. Exhibit leadership for digital citizenship.

By the end of Grade 2 each student will:

- describe appropriate and inappropriate uses of technology (e.g., computers, Internet, e-mail, cell phones) and describe consequences of inappropriate uses.
- know to inform a trusted adult if he/she receives or views an online communication which makes him/her feel uncomfortable, or if someone whom he/she doesn't know is trying to communicate with him/her or asking for personal information.

By the end of Grade 5 each student will:

- discuss scenarios involving acceptable and unacceptable uses of technology (e.g., file-sharing, social networking, text messaging, cyber bullying, plagiarism).
- recognize issues involving ethical use of information (e.g., copyright adherence, source citation).
- describe precautions surrounding personal safety that should be taken when online.
- identify the types of personal information that should not be given out on the Internet (name, address, phone number, picture, school name).

By the end of Grade 8 each student will:

- provide accurate citations when referencing information sources.
- discuss issues related to acceptable and responsible use of technology (e.g. privacy, security, copyright, plagiarism, viruses, file-sharing).
- discuss the consequences related to unethical use of information and communication technologies.
- discuss possible societal impact of technology in the future and reflect on the importance of technology in the past.
- create media-rich presentations on the appropriate and ethical use of digital tools and resources.
- discuss the long term ramifications (digital footprint) of participating in questionable online activities (e.g., posting photos of risqué poses or underage drinking, making threats to others).
- describe the potential risks and dangers associated with online communications.

By the end of grade 12 each student will:

- identify legal and ethical issues related to the use of information and communication technologies (e.g., properly selecting and citing resources).
- discuss possible long-range effects of unethical uses of technology (e.g., virus spreading, file pirating, hacking) on cultures and society.
- discuss and demonstrate proper netiquette in online communications.
- identify ways that individuals can protect their technology systems from unethical or unscrupulous users.
- create appropriate citations for resources when presenting research findings.
- discuss and adhere to fair use policies and copyright guidelines.

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

- A. Understand and use technology systems.
- B. Select and use applications effectively and productively.
Troubleshoot systems and applications.
- C. Transfer current knowledge to learning of new technologies.

By the end of Grade 2 each student will:

- use a variety of digital tools (e.g., word processors, drawing tools, simulations, presentation software, graphical organizers) to learn, create, and convey original ideas or illustrate concepts.
- work together when using digital tools (e.g., word processor, drawing, presentation software) to convey ideas or illustrate simple concepts relating to a specified project.
- use a variety of developmentally appropriate digital tools (e.g., computing devices, word processors, paint programs) to communicate ideas to classmates, families, and others.
- interact with Internet based resources.
- use digital resources (e.g., dictionaries, encyclopedias, graphs, graphical organizers) to locate and interpret information relating to a specific curricular topic, with assistance from teachers, school library media specialists, parents, or student partners.
- explain ways that technology can be used to solve problems (e.g., cell phones, traffic lights, GPS units).
- use digital resources (e.g., dictionaries, encyclopedias, search engines, web sites) to solve developmentally appropriate problems, with assistance from teachers, parents, school media specialists, or student partners.

- discuss advantages and disadvantages of using technology, be able to use basic menu commands to perform common operations (e.g., open, close, save, print).
- recognize and name the major hardware components in a computer system (e.g., computer, monitor, keyboard, mouse, printer),
- discuss the basic care for computer hardware and various media types (e.g., CDs, DVDs).
- use developmentally appropriate and accurate terminology when talking about technology.
- understand that technology is a tool to help him/her complete a task, and is a source of information, learning, and entertainment, and
- demonstrate the ability to navigate in virtual environments (e.g., electronic books, games, simulation software, web sites).

By the end of Grade 5 each student will:

- use digital communication tools (e.g., e-mail, wikis, blogs, IM, chat rooms, videoconferencing, Moodle, Blackboard) and online resources for group learning projects.
- identify how different software applications may be used to share similar information, based on the intended audience (e.g., presentations for classmates, newsletters for parents).
- use a variety of media and formats to create and edit products (e.g. presentations, newsletters, brochures, web pages) to communicate information and ideas to various audiences.
- use digital tools to find, organize, analyze, synthesize, and evaluate information.
- understand and discuss that web sites and digital resources may contain inaccurate or biased information.
- understand that using information from a single Internet source might result in the reporting of erroneous facts and that multiple sources should always be researched.
- use digital resources to access information that can assist in making informed decisions about everyday matters (e.g., which movie to see, which product to purchase).
- use information and communication technology tools (e.g., calculators, probes, videos, DVDs, educational software) to collect, organize, and evaluate information to assist with solving problems.
- use digital resources to identify and investigate a state, national, or global issue (e.g., global warming, economy, environment).
- use basic input and output devices (e.g., printers, scanners, digital cameras, video recorders, projectors).
- describe ways technology has changed life at school and at home.

- understand and discuss how assistive technologies can benefit all individuals.
- demonstrate proper care in the use of computer hardware, software, peripherals, and storage media.
- know how to exchange files with other students using technology (e.g., network file sharing, flash drives).
- produce a media-rich digital project aligned to state curriculum standards (e.g. fable, folk tale, mystery, tall tale, historical fiction).
- use a variety of technology tools and applications to demonstrate his/her creativity by creating or modifying works of art, music, movies, or presentations.

By the end of Grade 8 each student will:

- apply common software features (e.g., spellchecker, thesaurus, formulas, charts, graphics, sounds) to enhance communication with an audience and to support creativity.
- create an original project (e.g., presentation, web page, newsletter, information brochure).
- using a variety of media (e.g., animations, graphs, charts, audio, graphics, video) to present content information to an audience.
- illustrate a content-related concept using a model, simulation, or concept mapping software.
- use digital resources (e.g., discussion groups, blogs, podcasts, videoconferences, Moodle, Blackboard) to collaborate with peers, experts, and other audiences.
- use collaborative digital tools to explore common curriculum content with learners from identify effective uses of technology to support communication with peers, family or school personnel use a variety of digital resources to locate information.
- evaluate information from online information resources for accuracy and bias.
- understand that using information from a single Internet source might result in the reporting of erroneous facts and that multiple sources should always be researched.
- identify types of web sites based on their domain names (e.g., edu, com, org, gov, net).
- employ data-collection technologies (e.g., probes, handheld devices, GPS units, geographic mapping systems) to gather, view, and analyze the results for a content- related problem.
- use databases or spreadsheets to make predictions, develop strategies, and evaluate decisions to assist with solving a problem.

- evaluate available digital resources and select the most appropriate application to accomplish a specific task (e, g., word processor, table, outline, spreadsheet, presentation program).
- gather data, examine patterns, and apply information for decision making using available digital resources.
- describe strategies for solving routine hardware and software problems,
- create media-rich presentations on the appropriate and ethical use of digital tools and resources.
- use a variety of technology tools (e.g., dictionary, thesaurus, grammar-checker, calculator) to maximize the accuracy of technology-produced materials.
- perform queries on existing databases and file formats for a variety of applications (e.g., doc, xls, pdf, txt, jpg, mp3).
- know how to create and use various functions available in a database (e.g., filtering, sorting, charts).
- identify a variety of information storage devices (e.g., CDs, DVDs, flash drives, SD cards) and provide rationales for using a certain device for a specific purpose.
- use accurate technology terminology.
- use technology to identify and explore various occupations or careers especially those related to science, technology, engineering, and mathematics.
- discuss possible uses of technology to support personal pursuits and lifelong learning.
- understand and discuss how assistive technologies can benefit all individuals.
- discuss security issues related to e-commerce.

By the end of grade 12 each student will:

- complete at least one online credit, or non-credit, course or online learning experience.
- use an online tutorial and discuss the benefits and disadvantages of this method of learning.
- explore career opportunities, especially those related to science, technology, engineering, and mathematics and identify their related technology skill requirements.
- describe uses of various existing or emerging technology resources.
- identify an example of an assistive technology and describe its potential purpose and use.
- participate in a virtual environment as a strategy to build networked learning skills.

- assess and solve hardware and software problems by using online help or other user documentation.
- explain the differences between freeware, shareware, open source, and commercial software and applications.
- participate in experiences associated with technology-related careers.
- identify common graphic, audio, and video file formats.
- understand and discuss how assistive technologies can benefit all individuals.
- demonstrate how to import/export text, graphics, or audio files.
- proofread and edit a document using an application's spelling and grammar checking functions.

Appendix C - Technological Pedagogical Content Knowledge (TPACK)

Technological Pedagogical Content Knowledge (TPACK). (2006.) Image retrieved May 17, 2012 from <http://mkoehler.educ.msu.edu/tpack/>.