

Technology Master Plan, 2015-2017



Department of Technology and Research
Chesterfield County Public Schools
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Executive Summary

The Chesterfield County Public Schools Technology Master Plan is an extension of the division's strategic plan, the Design for Excellence 2020 (DfE2020). Technology supports almost every aspect of the strategic plan, from teaching and learning to operations and efficiency enhancements. Therefore, the Technology Master Plan is informed by the many community outreach sessions that focused on students using technology to "prepare [students] for success in school, postsecondary education, work and life in a global society" (DfE2020, Goal 2).

To further inform this plan, CCPS conducted a comprehensive technology needs assessment. The needs assessment included a review of scholarly literature, a mobile device pilot involving over 500 students, and a carefully designed survey which solicited responses from a statistically significant sample of students, teachers, and parents in every school--over 25,000 responses. Six key recommendations emerged from this assessment. These recommendations can serve as the impetus for continued conversations and collaboration among all stakeholders in the CCPS community.

- **Recommendation #1:** Increase student access to computers from a division average of 5:1 students to computers to a division average of 2:1.
- **Recommendation #2:** Increase division bandwidth to the Internet, and within the wide area network to support student access to mobile devices.
- **Recommendation #3:** Remove "in-school only" access barriers to learning applications and make them available to students anytime, anywhere.
- **Recommendation #4:** Increase wireless network density in the elementary school level in anticipation of decreased ratio of students to computers.
- **Recommendation #5:** Increase teacher online skills and teacher digital citizenship proficiency to the advanced level as measured by the annual technology survey.
- **Recommendation #6:** Externally review key systems disaster recovery and network security plans.

The key to teaching and learning in a digital environment is student access to a computer. In school year 2014-2015, all middle school students received a Chromebook to support their learning. In the 2015-2016 school year, all high school students will receive Chromebooks. Together, the total number of students with Chromebooks will be one of the largest single deployments of Chromebooks in the United States, providing nearly 33,000 students with access to our digital learning community and curriculum resources anytime, anywhere. It is our goal to increase elementary student access to computers starting in the 2016-2017 school year.

The Technology Master Plan supports the DfE2020, and builds upon the opportunities teachers and students have to engage and collaborate in today's classroom, which extends beyond the walls of our schools.

Process

Summary of the Connections to the CCPS strategic plan

CCPS Vision

Chesterfield County Public Schools will provide an engaging and relevant education that prepares every student to adapt and thrive in a rapidly changing world. (See <http://mychesterfieldschools.com/about/design-for-excellence-2020/> for details).

CCPS Mission

Chesterfield County Public Schools, in partnership with students, families and communities, emphasizes and supports high levels of achievement through a global education for all, with options and opportunities to meet the diverse needs and interests of individual students.

Technology Vision

The Department of Technology and Research leads the division's efforts to provide anytime/anywhere access to quality instructional and productivity resources by maintaining a robust and resilient network, as well as a simple way for students, teachers, and staff to access the appropriate technology for the job.

Tech Department Overview

The following provides information relevant to understanding the current personnel and computer assets that comprise the Technology and Research Department.

FY15 Number of FTEs: 103.6

FY15 Head Count: 104

Services

The Technology and Research department provides technology, research, and evaluation services for the division. Specifically, the technology services include network services, school technology services (e.g., computer repair and software support), database services, central library services, video production services, and instructional technology coaching and support. The research and evaluation services include program, school, and division-level evaluation services, management for school improvement and division testing, and oversight of internal and external research involving CCPS staff and students.

Statistics

- Students to computers ratio:
 - Elementary schools: 4:1
 - Middle schools: 1:1
 - High schools: 4:1 (1:1 SY 2015-2016)
- Number of managed devices: Over 45,000
- Number of wireless access points: 2,800
- Percentage of schools with wireless access: 100%
- School-level bandwidth:
 - Elementary Schools 100 Mbps
 - Middle Schools 1 Gbps
 - High Schools 100 Mbps, 1 Gbps planned for SY 2015-2016
- Division-level Internet bandwidth: 1.49 Gbps, 5.5 Gbps planned for SY2015-2016

Summary of work of the community engagement team

DfE 2020 public input sessions

The community participated in several public input sessions while formulating the Design for Excellence 2020 division strategic plan. The public input sessions contributed directly to the integration of a 1:1 computing plan for middle and high school students. Modifications to this plan made during the 2014-2015 school year include increased access to computers for elementary students beginning in the 2016-2017 school year.

Summary of the needs assessment process

Comprehensive needs assessment

The comprehensive needs assessment is a collaborative effort from the Chesterfield County Public Schools leadership team and the BrightBytes© research team. The team worked together over six months to design, organize, and execute the baseline data collection. The team's process included the following:

- [Research on technology and learning in Anytime, Anywhere Learning environments](#), including:
 - an extensive review of existing literature on successful anytime, anywhere learning implementations
 - the impact of technology, particularly Internet-based technologies, on learning
 - consideration of goal orientations and the growth mindset
 - conducting a mobile device pilot across all school levels
 - Discussion of contextual factors at CCPS that could affect this research
 - Collection of data on the use of technology at CCPS, including the types of work done by teachers and students, the availability of technology,

skills for using technology tools, and factors in each school that support or hinder adoption and expansion. This included input from key stakeholders on research based questionnaires distributed to:

- teachers from all grade levels and subject areas
 - elementary students
 - middle school students
 - high school students
 - administrators
 - parents
- Discussion of the data to identify strengths and gaps on a school-by-school basis
 - Analysis of all trends across all CCPS schools
 - Collaborative creation of next steps for the implementation of the Anytime, Anywhere Learning Project at CCPS

Summary of the evaluation process

The data collected at CCPS in the Fall of 2013 included questionnaire data gathered directly from teachers, students, administrators, and parents. These research-based questions were developed by experts from leading U.S. universities who study the links between technology and learning. The questions asked are phrased to collect objective data, and the results from teachers and students are cross-referenced to paint a picture of what happens in the classroom. For example, a teacher is asked how often she asks her students to collaborate online (one of the essential skills for college and career readiness), and her students are asked how often their teacher asks them to collaborate online. Through this kind of data collection, CCPS received a baseline on how the use of technology in the district is impacting learning.

The number of participants in the questionnaires was as follows:

- Teachers/Administrators- 3,921
- High School Students- 3,338
- Middle School Students- 4,164
- Elementary School Students- 6,968
- Parents- 8,355

The research team collected data from 61 school sites. It is important to note that the Chesterfield Technical Center (CTC) has students from other Chesterfield high schools, so this data is included with the high school data.

The data collected via the Clarity for Schools evaluation system has a significance level of 0.85 with a margin of error of 0.05 across all schools and all populations. Practically, this means that the findings of the evaluation system represent an 85% chance that the exact, true value for each data point is represented within 5%. The questions corresponded with the following theoretical framework:

The CASE Framework

There are four domains in which Clarity for Schools collects data on technology use, and they are represented by the acronym CASE. CASE stands for: Classroom, Access, Skills, and Environment. Taken together, these four sections encompass twenty-two success indicators which link technology and learning per the current research.

Classroom: This domain examines how much time students spend using technology and how they use it. The Classroom domain looks at the use of technology in the classroom to determine if the activities are closely linked with college and career readiness, and whether it is promoting 21st century skill development. The data includes activity of higher order thinking skills, as well as preparation to use online environments. The Classroom domain is divided into six success indicators:

- Teacher use of the “4Cs” (Communication, Collaboration, Creativity, Critical Thinking)
- Student Use of the “4Cs” (Communication, Collaboration, Creativity, Critical Thinking)
- Teacher Digital Citizenship
- Student Digital Citizenship
- Assistive Technology
- Digital Assessment

Access: This domain looks at the hardware, software, infrastructure, and connectivity that supports technology use. The platform looks at the availability of these tools for students and teachers both in the school and home environment. Data is collected not only on the availability of these items, but on the quality and accessibility of them. Its data points to the prerequisites for blended learning and project-based learning, essential elements for the school division’s instructional strategy plan. The Access domain is divided into four success indicators:

- Teacher Access at School
- Teacher Access at Home
- Student Access at School
- Student Access at Home

Skills: This domain looks at the personal and professional technology skills that teachers and students have, measuring their ability to use technology for their interests as well as their ability to use technology for learning. This domain explores foundational, online, and multimedia skills. Foundational skills include basic skills such as using spreadsheets and sending email. Online skills include skills such as social networking and online document collaboration. Multimedia skills include skills such as recording and editing audio or video. The Skills domain is divided into six success indicators:

- Teacher Foundational Skills
- Teacher Online Skills

- Teacher Multimedia Skills
- Student Foundational Skills
- Student Online Skills
- Student Multimedia Skills

Environment: This domain looks at the many factors in the school environment that can either support or hinder the use of technology for learning. This includes technology policies, the discussion of technology in evaluation/observation, the speed and quality of technical support, and the quantity and quality of professional development. Finally, it also includes beliefs that teachers and students have regarding the use of technology for learning, a bedrock need in the building of an effective culture that supports the use of technology in the classroom. The Environment domain is divided into six success indicators:

- Policies
- Practices
- Procedures
- Support
- Professional Learning
- Beliefs

In addition to the CASE framework, evidence specifically tied to the Anytime, Anywhere Learning initiative has been considered. The Clarity research team and the Chesterfield County Public Schools research team reviewed dozens of the leading studies on effective anytime, anywhere learning. This meta-analysis revealed a series of themes related to each phase of the project. While many of these factors coincide with the CASE framework described above, several are distinct to the specific student outcomes aligned to the Anytime, Anywhere Learning Project.

For ease, the factors have been placed into three categories: Setting the Stage, Learning in Action, and After Effects. Setting the Stage refers to all the elements that must be prioritized before the initiative starts. Learning in Action refers to the student learning outcomes that must be closely monitored during the initiative. After Effects refer to long-term student outcomes that could be affected by the work within the project. A summary of these factors follows.

Setting the Stage	Learning in Action	After Effects
<p>Empowered Leadership</p> <p>Presence of a strategic plan in the district</p> <p>Perception of school policies getting in the way of learning reported by teachers and students</p> <p>Presence of a plan to collect community input</p>	<p>Planned Instructional Outcomes</p> <p>Frequency of opportunities for critical thinking reported by teachers and students</p> <p>Frequency of opportunities for communication reported by teachers and students</p> <p>Frequency of opportunities for creativity reported by teachers and students</p> <p>Frequency of digital citizenship instruction reported by teachers and students</p>	<p>Student Engagement</p> <p>Frequency of multimedia projects reported by teachers and students</p> <p>Attendance rate over time</p> <p>Perception of abilities to fix one's own problems with technology and to solve problems reported by teachers and students</p>
<p>Access to Rich Digital Resources</p> <p>Speed of internet at school as reported by teachers and students</p> <p>Frequency of using web tools to find information reported by teachers</p> <p>Frequency of using web tools to read online content reported by teachers</p>	<p>Access to Technical Support</p> <p>Perceived quality of technical support reported by teachers</p> <p>Perceived speed of technical support reported by teachers</p> <p>Perceived quality of school provided devices reported by teachers and students</p>	<p>Closing the Gap</p> <p>Graduation rates over time</p> <p>Special education identification rate and exit rate over time</p>
<p>Teacher Skills</p> <p>Average hours of school sponsored and informal professional development reported by teachers</p> <p>Perceived quality of school sponsored and informal professional development reported by teachers</p> <p>Perceived personal competence of foundational skills reported by teachers (email, creating spreadsheets, etc.)</p> <p>Perceived personal competence of online skills reported by teachers (using social media, searching the web, etc.)</p> <p>Perceived personal competence of multimedia skills reported by teachers (create; edit audio/video, etc.)</p> <p>Perception of abilities to fix one's own problems with technology and to solve problems reported by teachers and students</p>	<p>Ongoing Professional Development</p> <p>Average hours of school sponsored and informal professional development reported by teachers</p> <p>Perceived quality of school sponsored and informal professional development reported by teachers</p>	<p>Student Achievement</p> <p>Aggregate achievement data over time</p>

Conclusions of the needs assessment

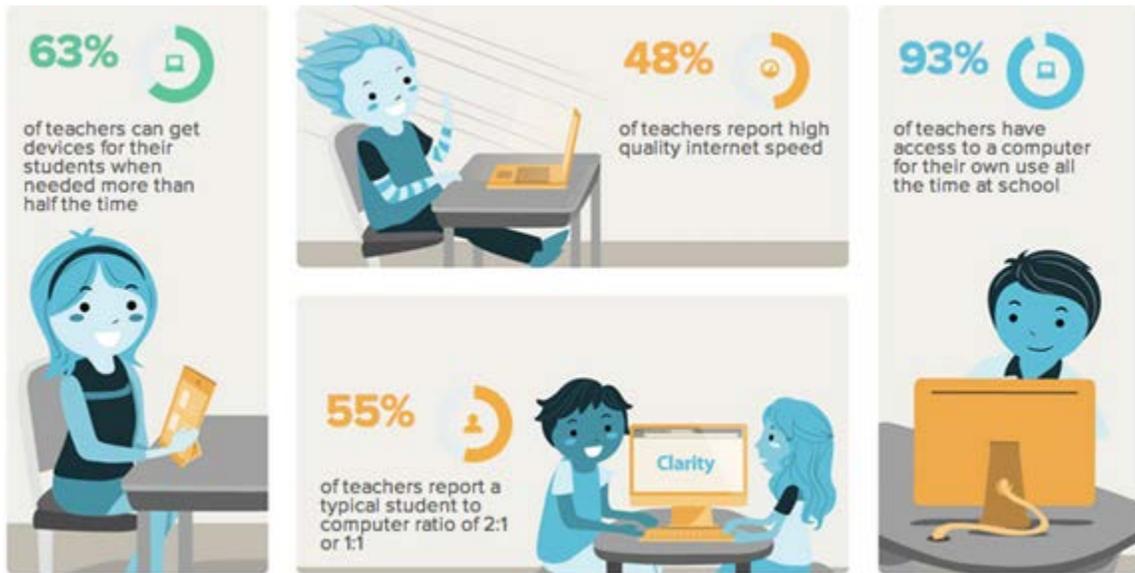
The following section looks at CCPS data in the four sections of the CASE framework with the intention of describing the current state of technology use within the district. Clarity for Schools, the evaluation tool, uses a scoring system that ranks schools on a scale of 800 to 1300. The scores are divided into the following maturity levels:

Category	Score
Beginning	800-899
Emerging	900-999
Proficient	1000-1099
Advanced	1100-1199
Exemplary	1200-1300

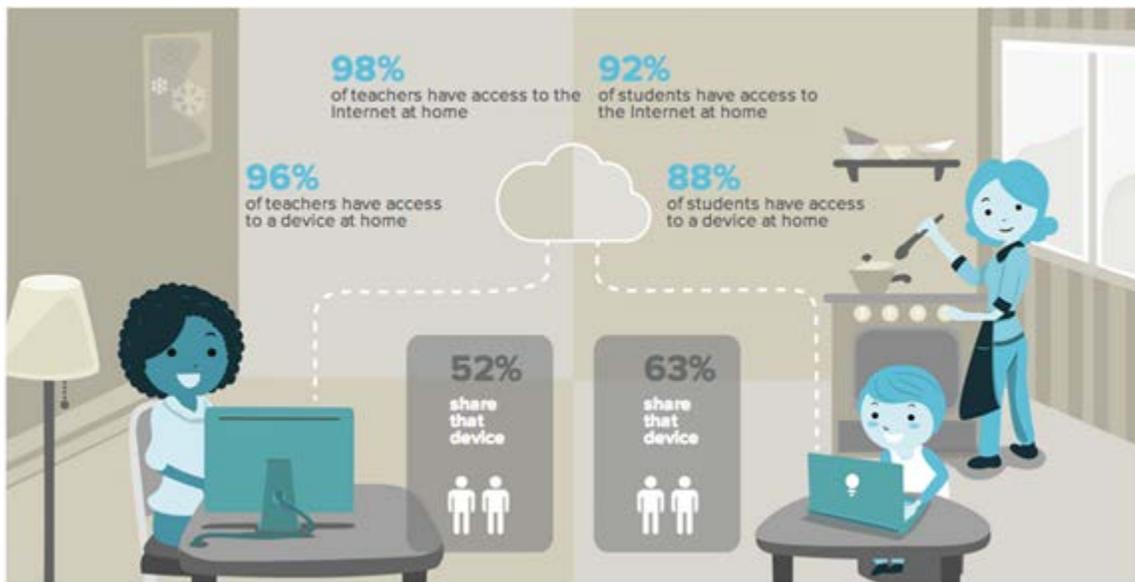
Each school and the division as a whole receive a CASE rating in each domain, and these ratings are based on extensive data analysis for each school.

Access: CCPS scored in the advanced category for Access, driven by the combination of good teacher access at school, excellent teacher access at home, and good student access at home. Importantly student access to technology at home was much higher than expected by the CCPS leadership team. Specifically, on average 92% of all students in CCPS have access to the Internet at home, rendering the potential impact of the Anytime, Anywhere Learning Project as very high.

Access at School:



Access at Home:



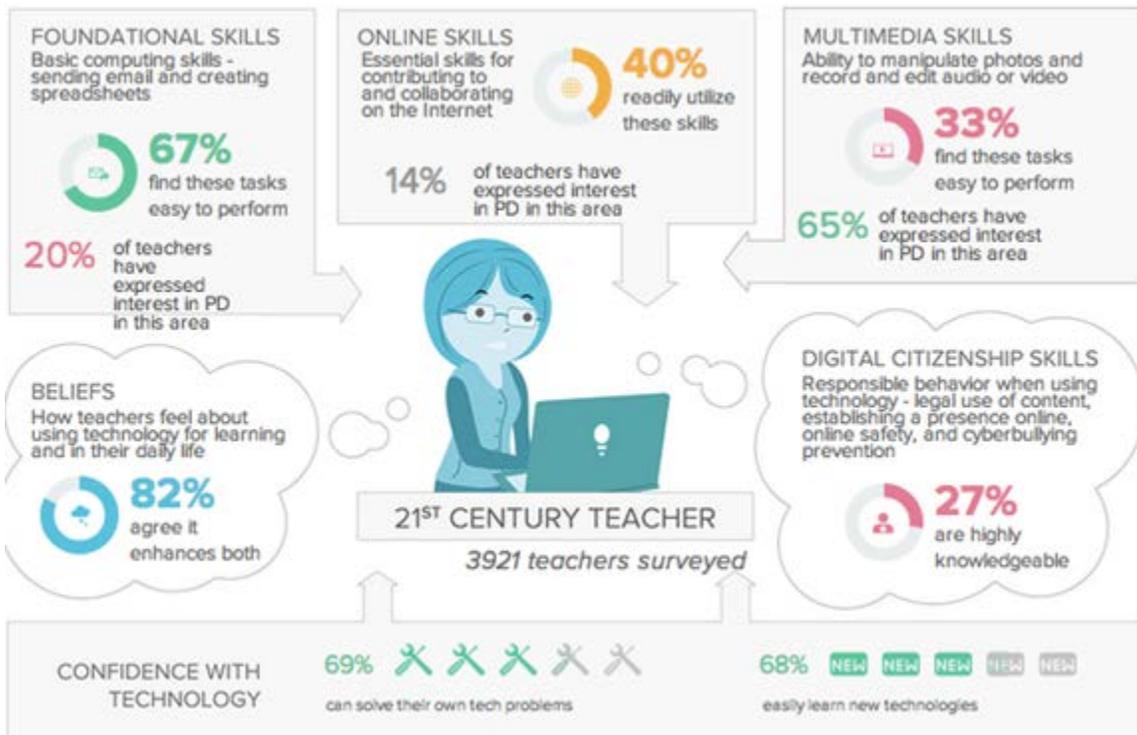
The full results in the Access domain are as follows:

NUMBER OF SCHOOLS IN EACH CATEGORY	Beginning	Emerging	Proficient	Advanced	Exemplary
Teachers at School	0	0	3	46	12
Teachers at Home	0	0	0	0	61
Students at School	0	0	28	33	0
Students at Home	0	2	47	11	1

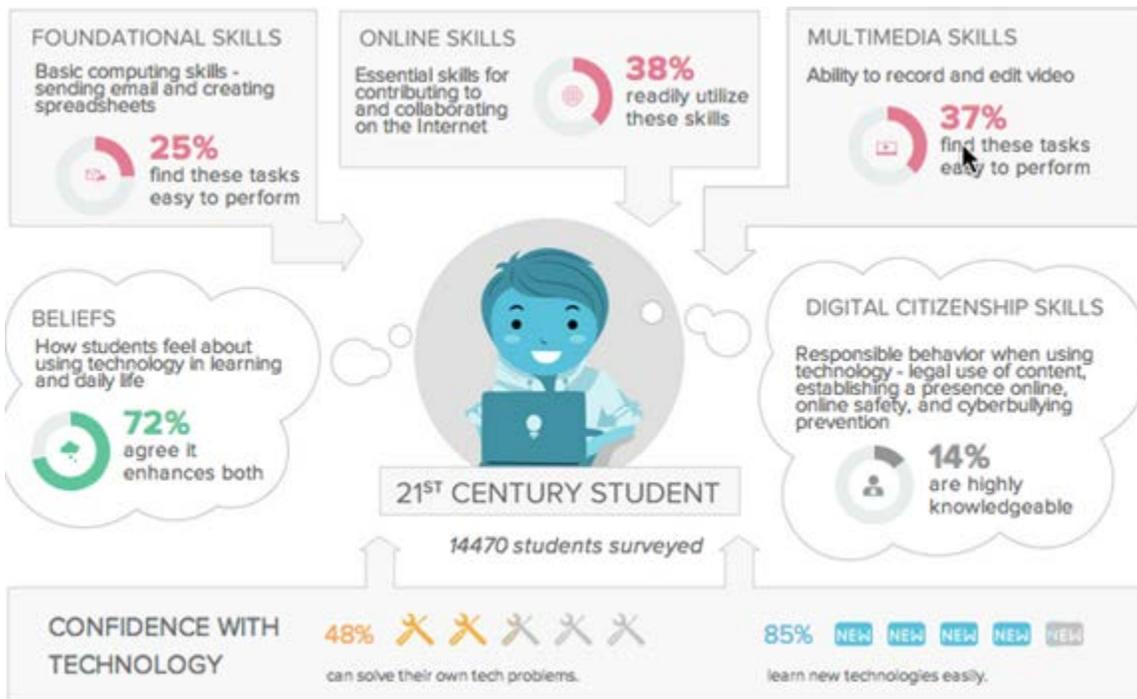
Data was collected from 61 schools in total. CCPS has done a good job of providing students and teachers with access to technology at school over the past few years; however, the district recognizes that additional access for students at home and at school can foster additional learning opportunities, especially in the areas of communication, collaboration, creativity, and critical thinking.

Skills: CCPS scored in the middle of the advanced category, driven by the combination of good teacher and student foundational skills. Importantly, online skills and multimedia skills lag behind foundational skills for both teachers and students at every school site. This means that student and teacher skills in these areas will need to be addressed in order to meet the demands of the instructional strategies selected for the Anytime, Anywhere Learning Project. Modern employers and colleges need students who are fluent in both online and multimedia skills.

Teacher Skills:



Student Skills:



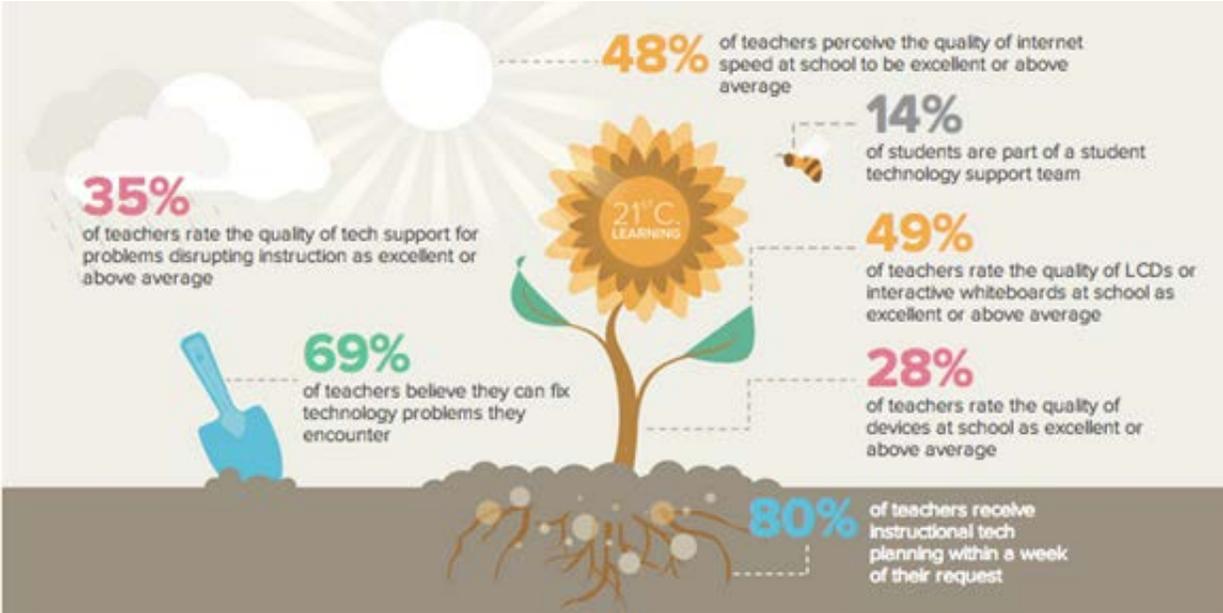
The full results in the Skills domain are as follows:

NUMBER OF SCHOOLS IN EACH CATEGORY	Beginning	Emerging	Proficient	Advanced	Exemplary
Teacher Foundational	0	0	0	37	24
Teacher Online	0	0	35	26	0
Teacher Multimedia	0	1	51	9	0
Student Foundational	0	1	32	28	0
Student Online	0	3	36	22	0
Student Multimedia	0	0	50	11	0

CCPS must use strategic professional development to help students and teachers grow from consumption of information using technology towards the production of original content using technology. This will increase skills in the online and multimedia areas, better preparing staff and students for the instructional opportunities afforded by the Anytime, Anywhere Learning Project.

Environment: The Environment domain is a relatively weak area for CCPS. Although there is a strong belief among teachers, students, and parents that technology will positively impact learning, technical support and professional learning need targeted attention. For example, 39% of teachers receive less than the required 14 hours of professional development required to impact classroom instruction as documented in the literature. Regarding support, only 16% of problems disrupting instruction are handled within the same day. Additional support and professional development will be required for success in the Anytime, Anywhere Learning Project.

Technology Support:



The full results in the Environment domain are as follows:

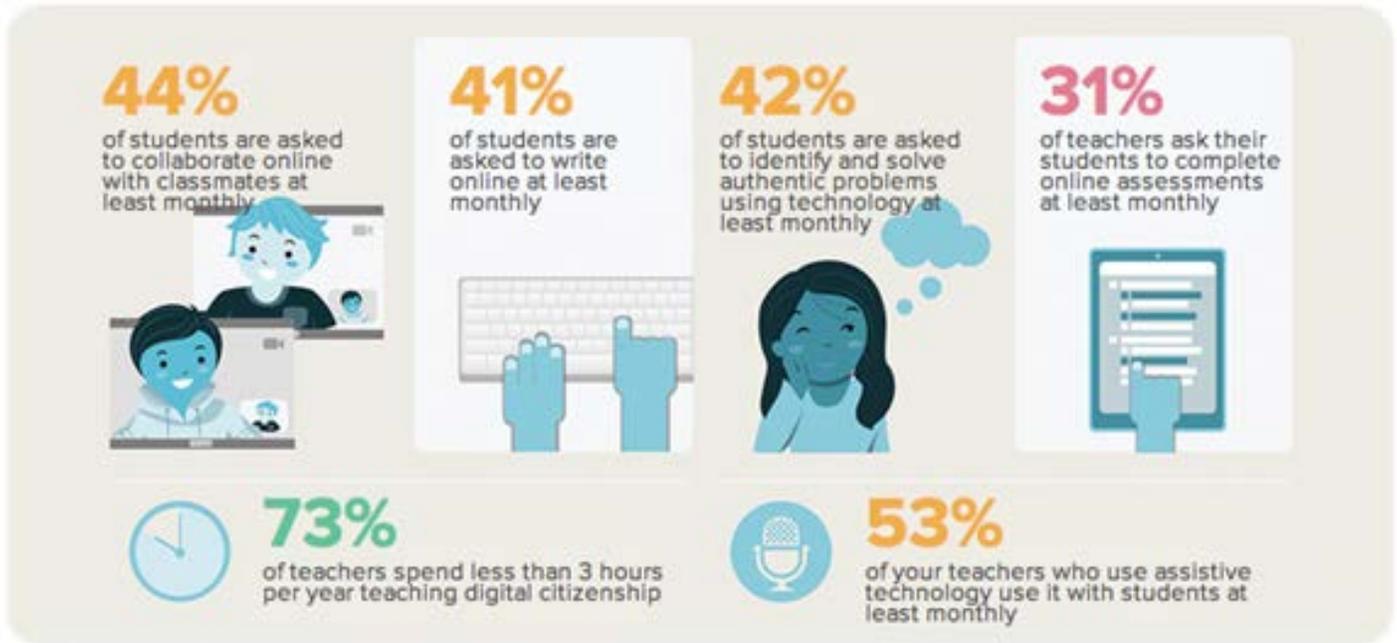
NUMBER OF SCHOOLS IN EACH CATEGORY	Beginning	Emerging	Proficient	Advanced	Exemplary
Policies, Practices, and Procedures	0	0	31	30	0
Support	0	13	48	0	0
Professional Learning	0	37	24	0	0
Beliefs	0	0	0	61	0

Through a strategic use of resources and a thoughtful device selection, CCPS hopes to reduce the number of support requests and increase access to professional development for teachers. This will foster a culture that supports the instructional risk-taking demanded by project-based learning and blended learning.

Classroom: Overall, the Classroom domain presents the largest opportunity for growth in CCPS. The weakest area across the district is the teachers’ use of the 4Cs, with the majority of schools possessing a score in the beginning stage for this success indicator. This means that teachers will need support and incentives to provide students with more opportunities to engage

in collaboration, communication, creativity, and critical thinking during the instructional experience. Further, digital citizenship is a weakness for both teachers and students. Given that middle school students will have unlimited access to their Chromebooks next year, digital citizenship will need to be integrated into all facets of the curriculum.

21st Century Learning:



The full results in the Classroom domain are as follows:

NUMBER OF SCHOOLS IN EACH CATEGORY	Beginning	Emerging	Proficient	Advanced	Exemplary
Teacher Use of the 4Cs	35	26	0	0	0
Teacher Digital Citizenship	0	4	57	0	0
Student Use of the 4Cs	2	41	18	0	0
Student Digital Citizenship	1	51	9	0	0
Assessment	1	43	17	0	0
Assistive Technology	0	22	38	1	0

CCPS can improve the ways in which technology improves student achievement in a number of ways, including those suggested in the Access, Skills, and Environment domains. The impact of these efforts can be measured in the classroom section to see if the work being done is changing the classroom.

Anytime, Anywhere Learning Readiness

The following section of the report considers CCPS' readiness on factors specifically related to the Anytime, Anywhere Learning Project. The factors of discussion were selected due to their prevalence in the literature regarding the impact of technology on learning. Data was gathered from this section both from the Clarity for Schools evaluation tool and the CCPS leadership team.

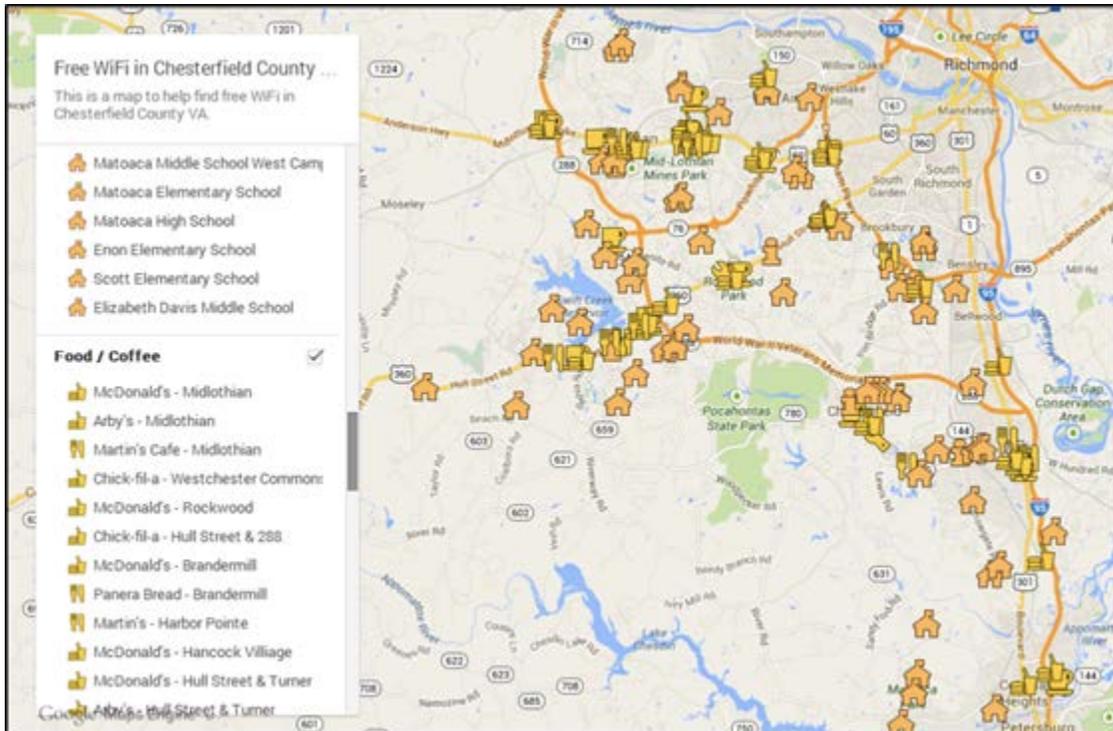
Evidence of Empowered Leadership: Regarding the leadership at CCPS, there has been a consistent effort to cultivate a shared vision, create supportive policies for technology, and engage all stakeholders.

With respect to a shared vision, the district has created a web portal to discuss the changes, both instructional and procedural, that are planned for the Anytime, Anywhere Learning Project. This site can be accessed at: <https://sites.google.com/a/ccpsnet.net/anytime-anywhere-learning/>. The Design for Excellence 2020 Plan, a strategic plan that sets forth a bold vision for connected learning in support of college and career readiness, is directly aligned with the Anytime, Anywhere Learning Project. Both of these artifacts show that the district has a

cohesive vision for teaching and learning that is echoed throughout all levels of leadership, not just the Technology Department.

Supportive policies for technology are evidenced through the [division's Network Acceptable Use policy](#). Teachers and students are encouraged to use social networks for learning, including tools like Edmodo. Only 19% of teachers report being blocked by policies and filters more than half the time. This is below the national average. Further, the Anytime, Anywhere Learning Project is designed with students' home access in mind. The [Standards of Student Conduct policy](#) permits students to take home devices while still being protected by the district's "always on" Internet filter. CCPS has also actively partnered with local Internet providers, county libraries, and churches to provide families with greater Internet access, creating a [dynamic map of Wi-Fi in the county](#). Community support includes discounted Internet access for homes qualified for federal lunch programs. Policies that support these types of access to devices, content, and connections are considered to be positive readiness factors for the Anytime, Anywhere Learning Project.

Dynamic Wi-Fi Map created by CCPS and maintained on the Anytime, Anywhere Learning portal:



Literature shows that stakeholder engagement also sets the stage for success. CCPS has undertaken a variety of efforts to collaborate with the community. First, the Clarity for School evaluation instrument gathered feedback from students, teachers, and parents. Second, public engagement sessions were held to share the vision for the new project and to solicit feedback for improvement. Finally, CCPS offered evening sessions for middle school parents to demonstrate features of the Anytime, Anywhere Learning initiative.

Access to Rich Digital Resources: Access to rich digital resources is a readiness factor that creates an environment that supports instructional change with Anytime, Anywhere Learning Projects. This includes access to adequate bandwidth and the ability for teachers to act as curators.

Bandwidth at CCPS is adequate, but may decrease with the addition of additional devices. Currently, 48% of teachers report high quality Internet speed at their school site. CCPS has also provided teachers with a wide selection of electronic resources, including interactive databases, open educational resources, social networks, and collaboration tools. Purchasing decisions will transition from the school-level to the division level, allowing curricular cohesion throughout the county. Specific examples of these tools at CCPS include but are not limited to:

- Discovery Education's digital content
- Dreambox Learning's adaptive math software
- Research databases
- CK-12's collection of free digital resources
- Khan Academy's extensive library of content, interactive challenges, assessments, and videos
- Gooru Learning's collection of free digital resources
- Edmodo's student-safe social learning platform
- Google Apps for Education's content creation and collaboration tools

In addition to the district-provided resources, teachers must have the skills to find their own resources. Teacher online skills, especially curation skills, help teachers procure and find valuable electronic resources for instruction. In CCPS 77% of teachers are regularly using web tools to find information and read online content. Professional development in this area will support teachers' ability to amass valuable resources for students to use. Over the next few months, professional development should be designed to ensure a smooth transition to digital resources during the Anytime, Anywhere Learning Project.

Teacher Skills: Teacher skills, access to professional development, and teacher goal orientation are also three readiness factors that are evidenced at CCPS.

Regarding professional development, most teachers report that they receive between 1-8 hours of annual school sponsored professional development, and it is of average quality. In fact, most teachers report engaging in no informal professional development outside of school. CCPS has planned teacher training that will be driven by the Department of Curriculum and Instruction. Training will include examples of effective blended learning in the classroom, providing a common message from both the Department of Technology and the Curriculum and Instruction Department.

These professional development plans show evidence that the district is preparing to enhance teacher skills, which are currently rated as proficient or lower by the Clarity for School Evaluation Tool in the areas of online and multimedia skills. Job-embedded, continuous professional development can strengthen these skills and create higher instructional outcomes for students throughout the duration of the project.

Teachers' goal orientations are strong. 69% of teachers believe they can solve their own technology problems and 80% of CCPS staff want to learn more about effective technology use for teaching and learning. This perception data indicates that many teachers have the mindset necessary to grow as learners over the course of the Anytime, Anywhere Learning Project. Overall, evidence of the readiness factors required for a successful project rollout are available. CCPS has been intentional about its preparations for this project.

Recommendations

As a result of the conclusions drawn from the needs assessment, 6 broad recommendations emerged:

- **Recommendation #1:** Increase student access to computers from a division average of 5:1 students to computers to a division average of 2:1.
- **Recommendation #2:** Increase division bandwidth to the Internet, and within the wide area network to support student access to mobile devices.
- **Recommendation #3:** Remove “in-school only” access barriers to learning applications and make them available to students anytime, anywhere.
- **Recommendation #4:** Increase wireless network density in the elementary school level in anticipation of decreased ratio of students to computers.
- **Recommendation #5:** Increase teacher online skills and teacher digital citizenship proficiency to the advanced level as measured by the annual technology survey.
- **Recommendation #6:** Externally review key systems disaster recovery and network security plans.

These recommendations are listed as strategies and tied to the VDOE technology goals in the following section.

Actions

In this section, we list each of the VDOE Technology Plan goals and objectives, and tie CCPS strategies to each.

1. Goal 1: Provide a safe, flexible, and effective learning environment for all students

A. Objectives

1. Objective 1.1: Deliver appropriate and challenging digital curricula to empower teachers in face-to-face, blended, and virtual learning environments.
 1. Strategy 1.1.1: Provide single-sign-on dashboard for key teaching and learning tools (my.ccpsnet.net).
 - a. Evaluation Strategy: Determine with Curriculum and Instruction Department at least annually which apps should be maintained and if any new apps should be added.
 - b. Design for Excellence Alignment: 2.2 Learners will understand and apply 21st-century interdisciplinary themes that are vital to success in communities and the workplace.
 2. Objective 1.2: Provide the technical and human infrastructure necessary to support real, blended, and virtual learning environments.
 1. Strategy 1.2.1: Provide a minimum of 15 Mbps of bandwidth to the desktop at every school and office location.
 - a. Evaluation Strategy: Conduct bandwidth tests at all locations twice annually and report results to network manager.
 - b. Design for Excellence Alignment: 1.4 Learners will be prepared to effectively communicate and interact in a multicultural, multilingual world.
 2. Strategy 1.2.2: Provide a wireless network capable of supporting 1:1 computing at all school levels.
 - a. Evaluation Strategy: Review wireless maps and spot check wireless density in school locations annually.
 - b. Design for Excellence Alignment: 1.4 Learners will be prepared to effectively communicate and interact in a multicultural, multilingual world.
 3. Strategy 1.2.3: Align staffing to support the technology responsibilities of the Design for Excellence 2020 division strategic plan.
 - a. Evaluation Strategy: Review staffing during the annual budget planning process.
 - b. Design for Excellence Alignment: 1.2 Learners will understand science, technology, engineering and

mathematics as integrated fields of study that emphasize questioning and inquiry, develop analytical thinking and focus on problem-solving and design.

3. Objective 1.3: Provide high-quality professional development to help educators create, maintain, and work in a variety of learner-centered environments.
 1. Strategy 1.3.1: Offer school-level and administrative technology user support via Technology Integrators at least one full day per week for each school and office location.
 - a. Evaluation Strategy: Collect Technology Integrator use and support data via the internal data collection tool and continually review.
 - b. Design for Excellence Alignment: 2.3 Learners will ethically use 21st-century tools to develop skills essential to everyday life and workplace technology, including the abilities to think and problem solve.
 - c. Design for Excellence Alignment: 1.2 Learners will understand science, technology, engineering and mathematics as integrated fields of study that emphasize questioning and inquiry, develop analytical thinking and focus on problem-solving and design.
 2. Strategy 1.3.2: Plan and deliver iTech classes to provide structured training for division priority applications.
 - a. Evaluation Strategy: Review course feedback forms.
 - b. Design for Excellence Alignment: 1.2 Learners will understand science, technology, engineering and mathematics as integrated fields of study that emphasize questioning and inquiry, develop analytical thinking and focus on problem-solving and design.

B. Design for Excellence 2020 Alignment

1. Alignment 1: Goal 2 Strategy - 21st Century Curriculum, Develop curriculum and assessments aligned with the 21st-century framework
 1. Develop updated integrated model of 21st-century learning skills and self-directed learning, 2015-16

2. Goal 2: Engage students in meaningful curricular content through the purposeful and effective use of technology.

A. Objectives

1. Objective 2.1: Support innovative professional development practices that promote strategic growth for all educators and collaboration with other educators, content experts, and students.
 1. Strategy 2.1.1: Facilitate Primary Learning Community (PLC)

- communication via the use of Edmodo and other online communication and collaboration tools.
- a. Evaluation Strategy: Review technology-based communication and collaboration tools for relevance and goodness of fit annually.
 - b. Design for Excellence Alignment: 2.1 Learners will apply knowledge across disciplines to investigate and solve real-world problems. 2.2 Learners will understand and apply 21st-century interdisciplinary themes that are vital to success in communities and the workplace.
2. Strategy 2.1.2: Provide the technical tools to enable educators to connect with their colleagues worldwide.
 - a. Evaluation Strategy: Review technology-based communication and collaboration tools for relevance and goodness of fit annually.
 - b. Design for Excellence Alignment: 2.1 Learners will apply knowledge across disciplines to investigate and solve real-world problems. 2.2 Learners will understand and apply 21st-century interdisciplinary themes that are vital to success in communities and the workplace.
2. Objective 2.2: Actualize the ability of technology to individualize learning and provide equitable opportunities for all learners.
 1. Strategy 2.2.1: Provide online access to teaching and learning materials for all students and staff.
 - a. Evaluation Strategy: Review suite of applications annually to ensure curricular goal alignment.
 - b. Design for Excellence Alignment: 2.1 Learners will apply knowledge across disciplines to investigate and solve real-world problems. 2.2 Learners will understand and apply 21st-century interdisciplinary themes that are vital to success in communities and the workplace.
 2. Strategy 2.2.2: Provide timely and accurate feedback to students and parents regarding student progress.
 - a. Evaluation Strategy: Review student information system parent and student portal uptime and options annually.
 - b. Design for Excellence Alignment: 2.1 Learners will apply knowledge across disciplines to investigate and solve real-world problems. 2.2 Learners will understand and apply 21st-century interdisciplinary themes that are vital to success in communities and the workplace.
 3. Objective 2.3: Facilitate the implementation of high-quality Internet safety programs in schools.
 1. Strategy 2.3.1: Select or create digital citizenship curriculum for all school levels in partnership with the Curriculum and

Instruction Department.

- a. Evaluation Strategy: Evaluate curriculum annually for relevance and completeness and alignment to Common Sense Media's standards (<https://www.common sense media.org/educators/classroom-curriculum/alignment>).
 - b. Design for Excellence Alignment: Goal 2.3 Learners will ethically use 21st-century tools to develop skills essential to everyday life and workplace technology, including the abilities to think and problem solve.
3. Goal 3: Afford students with opportunities to apply technology effectively to gain knowledge, develop skills, and create and distribute artifacts that reflect their understandings.
- A. Objectives
1. Objective 3.1: Provide and support professional development that increases the capacity of teachers to design and facilitate meaningful learning experiences, thereby encouraging students to create, problem-solve, communicate, collaborate, and use real-world skills by applying technology purposefully.
 1. Strategy 3.1.1: Maintain an instructional technology integrator service plan that reflects the division's instructional plan.
 - a. Evaluation Strategy: Review Integrator guide to services annually.
 - b. Design for Excellence Alignment: Goal 1.1 Learners will develop into independent, strategic readers, writers, thinkers and communicators across all fields of study, using diverse formats and media.
 2. Objective 3.2: Ensure that students, teachers, and administrators are ICT literate.
 1. Strategy 3.2.1: Work with the Department of Curriculum and Instruction to align information and communication technology (ICT) goals with division curriculum frameworks.
 - a. Evaluation Strategy: Annual ICT preparedness survey for students, teachers, and staff.
 - b. Design for Excellence Alignment: Goal 2.3 Learners will ethically use 21st-century tools to develop skills essential to everyday life and workplace technology, including the abilities to think and problem solve.
 3. Objective 3.3: Implement technology-based formative assessments that produce further growth in content knowledge and skills development.
 1. Strategy 3.3.1: Assist the Department of Curriculum and Instruction to provide access to formative assessment tools via the student and staff single-sign-on dashboard.

- a. Evaluation Strategy: Review dashboard contents annually.
 - B. Design for Excellence Alignment: Goal 2.2 Learners will understand and apply 21st-century interdisciplinary themes that are vital to success in communities and the workplace.
- 4. Goal 4: Provide resources and support to ensure that every student has access to a personal computing device.
 - A. Objectives
 - 1. Objective 4.1: Provide resources and support to ensure that every student has access to a personal computing device.
 - 1. Strategy 4.1.1: Provide student mobile devices to all middle and high school students.
 - a. Evaluation Strategy: Anytime, Anywhere Learning evaluation plan.
 - b. Design for Excellence Alignment: Goal 2 All learners will demonstrate the 21st-century learning and technology skills and knowledge that will prepare them for success in school, postsecondary education, work and life in a global society.
 - 2. Strategy 4.1.2: Increase elementary student access to personal technology from 5:1 to 2:1 by 2017.
 - a. Evaluation Strategy: Anytime, Anywhere Learning evaluation plan.
 - b. Design for Excellence Alignment: Goal 2 All learners will demonstrate the 21st-century learning and technology skills and knowledge that will prepare them for success in school, postsecondary education, work and life in a global society.
 - 3. Strategy 4.1.3: Create disaster recovery plan for core instructional and informational applications.
 - a. Evaluation Strategy: Annual review and rehearsal of disaster recovery plan.
 - b. Design for Excellence Alignment: Goal 2 All learners will demonstrate the 21st-century learning and technology skills and knowledge that will prepare them for success in school, postsecondary education, work and life in a global society.
 - 2. Objective 4.2: Provide technical and pedagogical support to ensure that students, teachers, and administrators can effectively access and use technology tools.
 - 1. Strategy 4.2.1: Focus Technology Integrator support on a 1:1 model for all 1:1 schools.
 - a. Evaluation Strategy: Anytime, Anywhere Learning evaluation plan.

- b. Design for Excellence Alignment: Goal 2 All learners will demonstrate the 21st-century learning and technology skills and knowledge that will prepare them for success in school, postsecondary education, work and life in a global society.
 - 2. Strategy 4.2.2: Offer “Camp Chromebook” or similar summer professional development sessions devoted to teaching in a 1:1 environment.
 - a. Evaluation Strategy: Anytime, Anywhere Learning evaluation plan.
 - b. Design for Excellence Alignment: Goal 2 All learners will demonstrate the 21st-century learning and technology skills and knowledge that will prepare them for success in school, postsecondary education, work and life in a global society.
 - 3. Objective 4.3: Identify and disseminate information and resources that assist educators in selecting authentic and appropriate tools for all grade levels and curricular areas.
 - 1. Strategy 4.3.1: Maintain CNet, an internally accessible website for all curriculum-related tools and pedagogical support.
 - a. Evaluation Strategy: Anytime, Anywhere Learning evaluation plan
 - b. Design for Excellence Alignment: Goal 1.1 1.1 Learners will develop into independent, strategic readers, writers, thinkers and communicators across all fields of study, using diverse formats and media.
5. Goal 5: Use technology to support a culture of data-driven decision making that relies upon data to evaluate and improve teaching and learning.

A. Objectives

- 1. Objective 5.1: Model the use of data to inform strategic plans and purchases.
 - 1. Strategy 5.1.1: Use annual technology survey to inform instructional technology annual goals and strategies.
 - a. Evaluation Strategy: Anytime, Anywhere Learning evaluation plan.
 - b. Design for Excellence Alignment: 2.2 Learners will understand and apply 21st-century interdisciplinary themes that are vital to success in communities and the workplace.
- 2. Objective 5.2: Provide support to help teachers disaggregate, interpret, and use data to plan, improve, and differentiate instruction.
 - 1. Strategy 5.2.1: Provide all principals with the “datagator” instructional technology staff monitoring tool and instruction on how to use the tool.

- a. Evaluation Strategy: Review data annually with principals upon request.
 - b. Design for Excellence Alignment: 2.2 Learners will understand and apply 21st-century interdisciplinary themes that are vital to success in communities and the workplace.
- 3. Objective 5.3: Promote the use of technology to inform the design and implementation of next- generation standardized assessments.
 - 1. Strategy 5.3.1: Provide the content creation tools necessary for teachers and curriculum personnel to design instructional resources and assessments.
 - a. Evaluation Strategy: Review digital creation tool offerings annually.
 - b. Design for Excellence Alignment: 2.2 Learners will understand and apply 21st-century interdisciplinary themes that are vital to success in communities and the workplace.

Appendix 1: Timetable and Budget

Goal	Objective	Strategy	Measure	Annual Budget	Timeline
1	1.1	1.1.1	C&I digital content strategy alignment review	\$429,000	Annual
1	1.2	1.2.1	Bandwidth tests/projections	\$1,475,000	Annual
1	1.2	1.2.2	Recurring building-level tests	\$300,000	Annual
1	1.2	1.2.3	Annual staffing review	\$8,700,000	Annual
1	1.3	1.3.1	Statistics from "Datagrator"	N/A	Monthly
1	1.3	1.3.2	Course feedback forms	N/A	Recurring
1	1.3	1.3.3	Event feedback forms	N/A	Recurring
2	2.1	2.1.1	Communications tool review	\$0	Annual
2	2.1	2.1.2	Communications tool review	\$0	Annual
2	2.2	2.2.1	C&I digital content strategy alignment review	\$429,000	Annual
2	2.2	2.2.2	Uptime and functionality review	\$38,000	Annual
2	2.3	2.3.1	C&I digital content strategy alignment review	\$429,000	Annual
3	3.1	3.1.1	Technology Integrator services guide review	N/A	Annual
3	3.2	3.2.1	ICT survey	\$0	Annual
3	3.3	3.3.1	Identity lifecycle account mgmt. and SSO	\$100,000	Annual
4	4.1	4.1.1	Anytime, Anywhere Learning evaluation	\$5,100,000	Annual
4	4.1	4.1.2	Anytime, Anywhere Learning evaluation	\$200,000 \$317,350	2016 2017
4	4.1	4.1.3	Review and rehearsal of disaster recovery plan.	\$40,000	Recurring
4	4.2	4.2.1	Anytime, Anywhere Learning evaluation	N/A	Annual
4	4.2	4.2.2	Anytime, Anywhere Learning evaluation	N/A	Annual
4	4.3	4.3.1	Anytime, Anywhere Learning evaluation	N/A	Recurring
5	5.1	5.1.1	Anytime, Anywhere Learning evaluation	N/A	Annual
5	5.2	5.2.1	Statistics from "Datagrator"	N/A	Annual
5	5.3	5.3.1	C&I digital content strategy alignment review	\$429,000	Annual

Appendix 2: Division AUP

Online at <http://www.boarddocs.com/vsba/chesterfield/Board.nsf/goto?open&id=99FF553D64B2>

Book: School Board Policies
Section: 7000 - Operations and Finance
Title: Acceptable Use, The CCPS-Net
Number: 7230-R
Status: Active
Legal:
Adopted
December 8, 2009
Last Revised
June 25, 2013

ACCEPTABLE USE, THE CCPS-NET

A. Generally

As is provided Policy 7230, the Superintendent hereby establishes in regulation, with concurrence of the School Board, for students and employees, acceptable and unacceptable use of the CCPS-NET that complies with the provisions of applicable state statute and regulation and the Federal Communications Commission regulations implementing the Children's Internet Protection Act (CIPA).

B. Purpose

The purpose of this regulation is to protect the CCPS-NET investment, safeguard the information contained within these systems, reduce business and legal risk, and protect the good name of Chesterfield County Public Schools (CCPS).

In support of the CCPS mission, the CCPS-NET will:

1. provide connectivity, facilitating access to local, regional, and worldwide resources; and,
2. use a technology, specifically a content filter, that blocks Internet access to materials deemed harmful to juveniles as called for in Va. Code § 22.1-70.2. The filter also screens non-curriculum materials.

It is CCPS policy to protect computer hardware, software, data and documentation from misuse, theft, unauthorized access and environmental hazards.

C. Acceptable Use

1. The CCPS-NET is established for educational purposes.
2. The CCPS-NET is a shared resource and will only fulfill its mission when used appropriately.
3. Any CCPS-NET user's traffic that traverses another network may be subject to that network's acceptable use policy.
4. Photographs of students may be included in World Wide Web documents provided no personal information is included.

D. Unacceptable Use

1. A CCPS-NET account user is responsible for all activities performed and system access gained through negligent use of the user's account.
2. Any use of the CCPS-NET for commercial purposes, personal gain, or advancing or inhibiting religious beliefs or political positions, is prohibited.
3. Any use of the CCPS-NET for illegal, inappropriate, or obscene purposes, or in support of such activities, is prohibited. Illegal activities shall be defined as a violation of local, state, or federal laws including the sending, receiving, viewing, or downloading of illegal materials. Inappropriate use shall be defined as a violation of the intended use of the network, including but not limited to, accessing materials deemed by the division to be harmful to juveniles as defined by the Va. Code §18.2-390, child pornography as set out in Va. Code §18.2-374.1:1, or obscenity as defined in Va. Code §18.2-372. Inappropriate use also includes, but is not limited to, the intentional introduction of viruses, corruption of systems, files and resources.
4. Any use of the CCPS-NET for purposes in conflict with approved School Board policies and procedures is prohibited. For example, among other policies, Policy 7200, Reproduction of Copyrighted Materials, prohibits the illegal copying of documents,

software, and other materials.

5. CCPS-NET administrators shall endeavor to ensure the right of privacy of users; however, all students, educators and parents have the responsibility to take appropriate action when becoming aware of unacceptable usage.

6. Any use of the CCPS-NET for the purpose of bullying students or employees, as defined in the Virginia Code.

E. Use of Networked Resources

1. Network Accessible Resources (NARs) must be used in support of the instructional program.

2. Exploration of NARs is to be conducted within the context of supporting the instructional program, and should be performed with a defined purpose or goal.

3. NARs will not be used as the sole research source, but rather will be considered with all research tools available in the library or classroom. Access, including remote access, to electronic databases provided through a paid subscription by CCPS is considered a Network Accessible Resource.

4. Given the fluid nature of many NARs, students and staff must evaluate the validity and appropriateness of use of a particular resource for a given assignment or application.

F. Access Codes/Passwords

1. All CCPS-NET employees shall have an individual account and password.

2. Password length and complexity requirements shall be maintained and enforced by CCPS-NET administrators.

3. Passwords must be changed at regular intervals.

4. User passwords should not be written down and/or kept in unsecure areas.

5. Lists of user names and passwords should not be created for any reason.
6. Passwords are not to be shared with anyone including network administrators.
7. Administrative passwords are not to be given to any other individual.

G. CCPS-NET Access and Accounts

1. Access to the CCPS-NET is permitted to the extent that available resources allow. Access may be revoked if misused.
2. All CCPS personnel are eligible for a CCPS-NET account.
3. Students in grades K-5 will have access to the CCPS-NET through accounts managed by school personnel.
4. Students in grades 6-12 will have access to the CCPS-NET through accounts managed by school personnel, and may be granted an individual account held jointly by the student and parent/guardian.
5. Community members are encouraged to access the CCPS website (www.mychesterfieldschools.com) through third party Internet providers.
6. From time to time, CCPS will make decisions on whether specific uses of the CCPS-NET are consistent with this policy. Chesterfield County Public Schools shall remain the final authority on use of the network and the issuance and cancellation of user accounts.

H. World Wide Web Access – Unfiltered Accounts

Chesterfield County Public Schools provide access to the World Wide Web (WWW) and the Internet via the CCPS-NET. As called for in Va. Code § 22.1-70.2, CCPS uses a technology, specifically a content filter, that filters and blocks Internet access to materials deemed harmful to juveniles, child pornography, and obscenity. The filter also screens non-curriculum materials.

Due to the nature of such filtering technology, the filter may at times filter pages that are appropriate for staff and student research. CCPS-NET administrators may recommend

that unfiltered access be allowed to certain sites or that certain sites be added to the filtering list. At their discretion, CCPS-NET administrators may consult with the Department of Curriculum and Instruction for assistance in making such recommendations. To facilitate the access of appropriate pages that the filter blocks, unfiltered accounts may be granted that bypass the filter. Unfiltered accounts may be granted to any staff member who satisfactorily explains, in writing, why they need such an account to facilitate the programs of the division. Such accounts shall not be granted to students. Staff should be aware that all web access by such unfiltered accounts is logged by the server and that these logs may be reviewed by CCPS-NET administrators periodically during normal system maintenance.

I. Internet Safety

Chesterfield County Public Schools provides access to the Internet via the CCPS-NET. As required by Va. Code § 22.1-70.2, CCPS must include an Internet safety component in the division's Acceptable Use Policy and integrate Internet safety in the instructional curriculum for kindergarten through grade 12. To comply with this mandate, an Internet safety program will be developed and aligned to the CCPS curriculum consistent with guidelines from the State Department of Education.

CCPS requires all students to complete identified components of an Internet safety program at each grade level. Further, all CCPS staff must annually certify that they have reviewed the CCPS Acceptable Use Policy and Regulation and have completed any Internet safety training component that is required.

J. Electronic Mail

1. Electronic mail (e-mail) is provided to staff and secondary students in support of the instructional program and its support services. Acceptable use of e-mail is based on common sense, common decency and civility as applied to all communications with the electronic environment. Users may use e-mail services for other than work-related activities, provided that such use is consistent with professional conduct; does not violate this, or any other, School Board policy or regulation; and does not violate any applicable state or federal law. Users may send and receive e-mail attachments that do not exceed established standards that are directly related to CCPS business functions.

2. In addition to the broad acceptable use principles outlined in this regulation and the conduct issues outlined in Regulation 4010-R, Standards for Student Conduct, the following unacceptable uses of e-mail are specifically prohibited:

a. sending or forwarding of harassing, abusive, or offensive material to or

about others;

- b. intercepting, altering, or disrupting electronic mail systems and/or messages;
- c. introducing messages to e-mail systems with the intent to cause network congestion;
- d. sending or forwarding offensive content of any kind, including pornographic material;
- e. sending or forwarding chain e-mail;
- f. promoting discrimination on the basis of race, gender, national origin, age, marital status, sexual orientation, religion, or disability;
- g. sending or forwarding e-mail that is threatening or violent;
- h. sending or forwarding e-mail that may involve CCPS in illegal activities;
- i. sending or forwarding commercial or political messages;
- j. sending legally protected information outside CCPS-NET;
- k. using e-mail for personal activities to the degree that work of the individual or others may be adversely affected; and
- l. using CCPS e-mail or non-CCPS e-mail on the CCPS-NET for the purpose of bullying students or employees, as defined in the Virginia Code.

3. A user of e-mail shall:

- a. ensure that all communications are for professional reasons and that they do not interfere with work productivity;
- b. be responsible for the content of all text, audio, or images that the

employee places or sends over e- mail;

c. not transmit copyrighted materials without permission;

d. know and abide by all applicable CCPS policies and regulations including, but not limited to, those dealing with security and confidentiality of student records; and

e. not open any messages or attachments from any unrecognized origin.

4. Electronic communications are protected by the same laws and policies, and are subject to the same limitations, as other types of media. When using or storing messages on the network, the user should consider both the personal ramifications and the impact on the school system should the messages be disclosed or released to other parties. Extreme caution should be used when committing confidential information to the network, as its confidentiality cannot be guaranteed. Messages sent to the wrong address may be used inappropriately and the receiver may save the information indefinitely. From time to time, the administrators of the e-mail system may review e-mail logs and or messages as a part of the standard maintenance and security schedule. Employees and students should not consider e-mail as private.

K. Penalties for Violation of the Acceptable Use Policy

Violators of the CCPS-Net Acceptable Use Policy are subject to applicable CCPS disciplinary action, which may include the suspension of CCPS-NET access privileges. Any unauthorized access, attempted access, or use of state computer network systems that is a violation of relevant federal or state law may be subject to criminal prosecution. Chesterfield County Public Schools will cooperate fully with local, state, and federal officials in any investigation related to any illegal activities conducted through the CCPS-NET.

Revised: June 25, 2013

Revised: May 22, 2012

Adopted: December 8, 2009

Legal Ref.: Code of Virginia, 1950, as amended, §§ 22.1-70.2, 22.1-276.01, 18.2-372, 18.2-374.1:1, 18.2-390.

Children's Internet Protection Act (Federal Communications Commission Regulations)

Cross Ref.: 1012 School Board's Mission, Vision, and Standards of Quality
3010 Curriculum and Instruction
4010-R Standards for Student Conduct
5020 Observance of Policies and Regulations
6100/6100-R Political Activities
7200 Reproduction of Copyrighted Materials
7230 Acceptable Use, The CCPS-NET

Chapter 5000, Human Resources -- Appendix A, Section 19, Discipline

[VSBA: GAB-R, IIBEA-R]

Appendix 3: Summary of Internet Safety Program for 2015-16

An outline of the division's Internet Safety Program is available online:

<https://sites.google.com/a/ccpsnet.net/anytime-anywhere-learning/curriculum/internet-safety>

Chesterfield County Public Schools use the Common Sense Education scope and sequence for Internet Safety instruction: <https://www.commonensemedia.org/educators/scope-and-sequence>