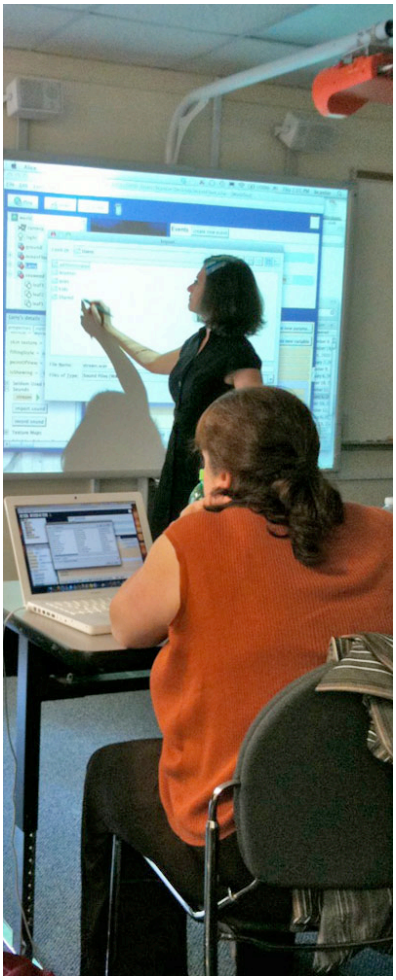
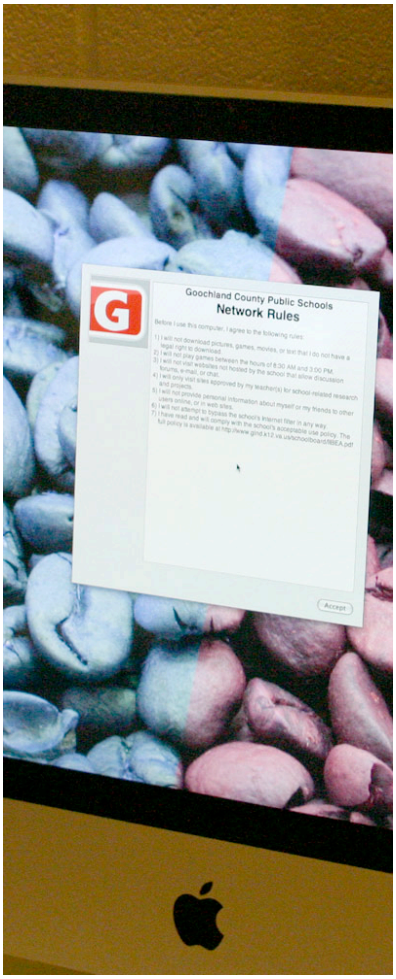
# 2010-2016
# Division Technology Plan





# Goochland County Public Schools
# Division Technology Plan
# 2010-2016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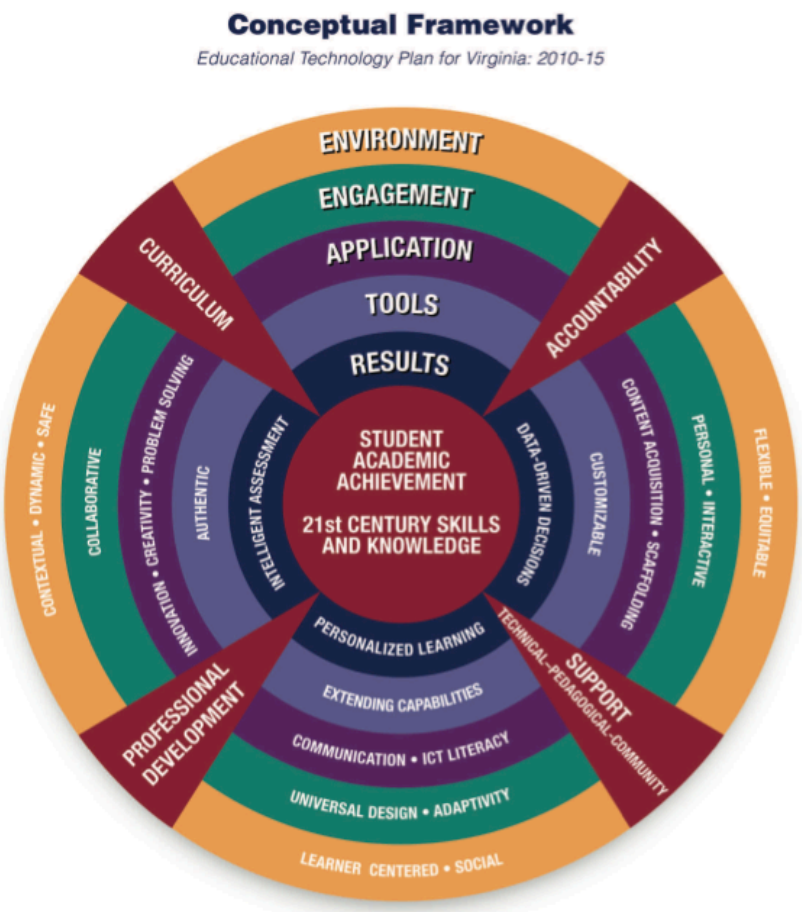
Goochland, Virginia
July, 2010

**Division Technology Plan**
Goochland County Public Schools
2010-2016

# Executive Summary

## Foreword

The overall technology plan for Goochland County was designed to communicate a vision and forecast the developmental role of technology in the education of Goochland's students. This map was developed for our school board and stakeholders both in the schools and the community. This plan for the next six years was designed around the new conceptual framework in the Virginia Department of Education's plan focusing on key areas of technology's influence: environment, engagement, application, tools, and results (figure 1). Evaluation of our progress in meeting our goals is an important component. Our principal belief is that technology is a key conduit towards successful teaching and learning. Coupled with an emphasis on academic rigor grounded in the practice of so-called twenty-first century skills, our plan is focused on continued increases in student achievement.




**—Figure 1.**
Virginia Department of Education's Conceptual Framework from their *Educational Technology Plan for Virginia (2010-2015)*.

## Determining the Needs

To develop an educational technology plan, our superintendent called together stakeholders from all segments of the community. This process began at the start of the 2009-10 school year. Our last update to our previous plan took place in March, 2008. We focused upon skills to be successful in the 21st century as our guide in creating and updating this plan. Our philosophy, vision, and mission statements, which we embrace still today, come from our previous six-year plan.

Philosophy
We believe technology, an essential component of today's changing world, to be an educational vehicle to promote academic achievement and to enhance lifelong learning.

Vision
Our vision is to provide all students, staff, and teachers with current and evolving implementations of technology necessary to achieve in school and beyond.

Mission
Our mission is to provide and to integrate the appropriate technological tools and skills into the educational environment in order to meet the intellectual, personal, social, and career preparation needs of all students.

## Goochland's Strengths

One of Goochland's strengths over the past six years in educational technology is our agility. Quality staff and the division's relative small size enable this strength to be identified. Examples of our agility have been the implementation time on new products and initiatives, our time on technical support cases, and our ability to quickly integrate new tools into both areas of instruction and administrative support.

Another strength we identified is our access to technology and also network services. While we don't currently deploy as many machines as teachers would like to have available to students, we do have enough capable machines to deliver the full complement of eSOL tests each year. Our survey results also tell us that we have adequate bandwidth in most locations to provide service with resources from the Internet.

In order to minimize costs and consolidate services, we maintain a close working relationship and collaborate regularly with the Goochland County Information Technology team. It has been our observation that most Virginia county school divisions maintain completely separate infrastructure from their county's. We do not believe that it makes sense to our customers, stakeholders and the taxpayers of Goochland County to procure and maintain disparate/redundant infrastructures. We adhere to and believe that we follow a "common sense" approach as we develop and maintain our infrastructure. This is reflected in shared infrastructure responsibilities in areas such as networking, telephony, security and access.

Our last strength has been identified around professional development. During the 2009-10 school year, we were finally able to fund an elementary ITRT position fulfilling our Standards of Quality requirement to 2 ITRTs for our 2500 student population. The ITRT role has been critical within our schools towards implementing our G21 projects, but also in offering after school and summer technology workshops. A solid plan for technology professional development helped identify Goochland County in a recent white paper published by the Virginia Society for Technology in Education (VSTE) on Innovation with Technology. The paper identified several practices afoot in Goochland, including our use of Moodle as an electronic learning platform. Professional Development focused on the role of technology with twenty-first century skills led to an international recognition for teacher Jamie-Ellen Spessard and ITRT Amanda Henley by way of the International Society for Technology in Education's SIGOL Online Learning Award in 2010.

Professional development efforts have recognized Goochland County Public Schools through its groundbreaking teacher blogging initiative begun in 2005, its deployment of over 75 Promethean interactive white boards in 2008-2009, and through its leadership in project-based learning experiences organized around twenty-first century skills. Goochland currently employs one Apple Distinguished Educator, 3 Promethean certified instructors, and 2 Google Certified Teachers.

**On the Horizon**

Goochland County has also identified a number of needs as we move forward. To meet our goals over the course of this six year plan, we need to improve in the number of network-capable machines we deploy for students and for professional staff to implement both new and current initiatives. This includes maintaining or improving our technology support staff, and increasing the number of instructional technology resource teachers (ITRT) available to each school.

Maintaining our working relationship with the county government will help keep costs under control. So will the adoption in the later part of the plan of cheaper network-compatible devices to improve the computer-to-student ratio and provide ebooks to students. We further plan to save money by continuing to adopt free and open-source software tools throughout the division. Examples already deployed are Apache web server, MIT Scratch, Carnegie Mellon's Alice, OpenOffice, MySQL, OpenSSL, Tomcat, Ruby, SAMBA, Python, PostFix, OpenLDAP, Moodle, Google Earth and Sketchup, WordPress, and GoogleApps.

Goochland will also continue its deployment of interactive white boards and provide continued professional development in the use of all devices that follow the logic in the TPACK framework. For us, this includes new professional development in Universal Design for Learning (UDL) principles that show teachers how to design learning experiences that accommodate all learners, from those with special needs to those identified as gifted.

**Highlights**

The following timeline highlights initiatives over the course of this plan.

**Table 1:** Timeline Highlights - Division Technology Plan

| 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 |
|---|---|---|---|---|---|
| Laptop refresh, new 4-year equipment lease | Begin professional development in UDL principles | Hire ITRT position for elementary | Acquisition of table computers for early elementary grades | Roll out of iOS-based devices for 1:1 program in grades 6-12, phase 1 | Secondary 1:1 program continued, phase 2 |
| Microwave network connectivity comes online for BES and RES | Pilot G21 2.0 initiative | Implement G21 2.0 initiative | Begin integration of G21 principles in curriculum | Hire additional hybrid ITRT/ support personnel | Hire additional hybrid ITRT/ support personnel |
| Roll-out GoogleApps for all secondary students | Plant course seeds for a computer science program at GHS | Revision of 6-year plan with updates | Adopt first international sister school | Hire new HS instructor for computer science/ certification goals | Establish sister-school relationships with all of Goochland's five schools |
| Begin purchase of TV studio upgrades to digital at GHS | Begin Virginia SOL assessment for technology & ISTE NETS-S standards | Begin industry certification efforts at HS in Final Cut Studio and AdobeSuite | IWB acquisition, elementary, phase 2 | Adopt second international sister school | IWB updates, secondary |
| Publish revised AUP | Technology/G21 assessment instrument deployed | IWB acquisition, elementary phase 1 | Pilot take-home of student devices | IWB acquisition elementary, phase 3 | |
| Ongoing network infrastructure updates | Upgrade Moodle server for students | Upgrade Moodle server for staff development | | Hardware lease refresh | |

*I can use the gaming devices to study math and other subjects and also to record things i need to know... —anonymous student survey response*

*We could do 3D simulations to instill what we see into our minds instead of just getting stuff on paper. —anonymous student survey response*

*[Improve access and implementation] by giving us a laptop of are own to use during the school year so we can have something to save are work instead of using notebooks... —anonymous student survey response*

# Goals, Objectives and Strategies

**Environment**

GOAL 1: Provide a safe, flexible, and effective learning environment for students and other education stakeholders in each of our schools.

Objective 1.1: Challenge each staff member to model ethical behavior when utilizing technology.

> Strategy 1.1.1: Provide resources for good Digital Citizenship for both staff and student use through the Goochland Citizenship21 website. Evaluate: promote online resources and track hits to webpages. Budget: no direct cost; responsibilities of supervisor of instructional technology/webmaster.
>
> Strategy 1.1.2: Clearly articulate expectations for ethical behavior in the division acceptable use policy for students and staff. Evaluate: Publish a revised A.U.P. that accommodates the latest trends and technologies by August, 2010. Budget: no direct cost; responsibilities technology team and school board.
>
> Strategy 1.1.3: Teachers will take an ethics of cyberspace and Internet safety course at their first year of employment with the school division, and every 5th year thereafter in a more condensed, refresher format. Evaluation: supervisor of instructional technology and human resources department. Budget: no direct cost.

Objective 1.2: Continue to deliver and assess a comprehensive Internet safety and ethics program through all grade levels.

> Strategy 1.2.1: Continue incorporation of internet safety topics in the K-12 curriculum in targeted areas in all subject areas. Evaluate: Study changes made to curriculum by lead teachers and department chairs, K-12 annually. Budget: lead teacher and department chair responsibilities with instructional budget.
>
> Strategy 1.2.2: Deliver lessons to students on topics of internet safety, including: cyberbullying, copyright, password selection, identity theft, and electronic communications. Evaluate: Teacher evaluations and expectations in Continuous Professional Development Portfolio. Budget: no direct budget implication.
>
> Strategy 1.2.3: Teachers will use Digital Citizenship resources (online links) following the Goochland Citizenship21 model when using computer/technology resources. Evaluate: Maintain Digital Citizenship microsite and track usage in teacher plans and website hits. Budget: No direct budget implication; responsibilities of supervisor of instructional technology and building principals.

Objective 1.3: Utilize all available media for improving communication between all education stakeholders.

Strategy 1.3.1: Encourage clarity & professionalism in the use of electronic media (e-mail, microblogging, blogging, chat, PowerSchool) to communicate with parents about student progress. Evaluate: Evaluate yearly; provide best practices at New Teacher Academy and in Ethics course for teachers new to the school division. Budget: responsibilities of supervisor of instructional technology, Human Resources department. No direct cost.

Strategy 1.3.2: Continue the Goochland Blogging Initiative utilized as a communications medium between classroom and families. Evaluate: Principals evaluate blogging habits of teachers set by A.U.P. expectations in teacher evaluations. Budget: Server replacement, $8000, SY2009-2010.

Strategy 1.3.3: Utilize microblogs and other RSS-capable communications online to communicate division-wide alerts. Evaluate: Division webmaster, website analytics. Evaluate annually as part of webmaster job duties. Budget: No budget implication.

Strategy 1.3.4: Utilize a SIS with parent and student logons to check academic progress. Evaluate: Information services specialist will provide a usage report. Budget: Annual maintenance and technical support, $11,500.

Strategy 1.3.5: Utilize School Messenger system to communicate division-wide alerts by phone. Evaluate: assistant superintendent, principals deliver messages; usage report tallies success of calls and e-mails Budget: Annual maintenance and technical support, $2,500.

Strategy 1.3.6: Partner with county/community government/organizations to extend availability of broadband-based Internet access throughout the county. Evaluate: evaluate biannually through technology department. Budget: $72,000 per year (networking hardware, firewall, and professional/support services provided through a cooperative partnership with the county government: value at ~$70,000 per year).

Strategy 1.3.7: Create a level of transparency among the stakeholders within the community through the use of read/write websites (Eagle Eyrie, Bark of the Dog). Evaluate: Review needs annually with building principals. Budget: no direct cost, accommodated through blogging and Web servers.

Objective 1.4: Maintain and increase secure network bandwidth at all buildings within the division to optimize learning opportunities.

Strategy 1.4.1: Partner with county administration to deliver wireless point-to-point Internet access to satellite elementary schools. Evaluate: evaluate biannually through technology department, technical coordinator Budget: SY2010-2011, projected savings of $12,000 annually. No direct cost to school division through a cooperative partnership with the county government.

Strategy 1.4.2: Utilize dual-wireless network topology in each school building to secure internal networked assets from guest wireless network. Evaluate: evaluate ongoing by technical coordinator. Budget: SY2009-2010, $12,000 upgrade. No recurring cost.

Strategy 1.4.3: Develop plan to replace aging internal network infrastructure at schools. Evaluate: technical coordinator and technology department by SY 2012-13. Budget: SY09-10, $15,000 upgrade. No recurring cost.

Strategy 1.4.4: Explore emerging communication options from vendors to increase overall internet bandwidth to division. Evaluate: evaluate annually by technical coordinator and technology department Budget: No budget implications at this time.

Strategy 1.4.5: Maintain a CIPA-compliant internet filtering appliance for network traffic that is presented to students that allows for staff overrides of blocked content. Evaluate: evaluated annually for budget and feature compliance by technical coordinator Budget: Annual $11,000.

Strategy 1.4.6: Maintain the secure network infrastructure to enable eSOL testing annually. Evaluation: regular monitoring of network by technical services coordinator. Budget: $160-180K annually (State funding).

Objective 1.5: Maintain a regular communication between staff (teachers and administrators) to assess instructional needs and technology applications.

Strategy 1.5.1: Building administrators will have a recurring dialog with staff at faculty meetings focused on issues relating to technology. Evaluate: superintendent's evaluation of principals. Budget: No direct cost.

Strategy 1.5.2: Publish an e-mail newsletter and podcast series focused on technology applications, news, and procedures. Evaluate: supervisor of instructional technology job description, ongoing. Budget: No direct cost.

Strategy 1.5.3: Include technology staff (ITRT, instruction, library media specialists, support) in delivering professional development and instructional initiatives. Evaluate: Evaluate annually with central office directors, instructional team, and building principals. Budget: No direct cost.

Strategy 1.5.4: Have instructional technology represented on the division-wide instruction committee. Evaluate: integration of technology and support in planned professional development will be evaluated annually. Budget: No direct cost.

**Engagement**

GOAL 2: Meet the needs of the twenty-first century learner by providing instructional support through both innovative and proven means with technology.

Objective 2.1: Increase number of active, student-centered classrooms that effectively utilize available technologies.

Strategy 2.1.1: Establish guidelines and provide support for planning lessons incorporating available technologies in classrooms (Promethean board, ActiVotes,

ActivSlate). Evaluate: Lead teachers/department chairs, supervisor of instructional technology, ITRTs will report time annually. Budget: professional development time from instructional budget.

Strategy 2.1.2: Engage students at their ability level by adopting the principles of Universal Design for Learning (UDL) in instructional practices. Evaluate: supervisor of instructional technology, ITRTs, teachers. Evaluate: follow-through with classroom observations by building administrators. Budget: no direct cost.

Strategy 2.1.3: Challenge teachers and students both to adopt twenty-first century skills into project-based experiences following the Goochland G21 framework. Evaluate: supervisor of instructional technology and building principals will evaluate this strategy annually as part of teachers' G21 project planning sessions. Budget: responsibilities of supervisor, instructional technology and instructional team. $70 annually for G21 Faire award.

Strategy 2.1.4: Deploy table-based computing devices for elementary learners (i.e., SMART Table) to support differentiation and UDL in elementary classrooms. Evaluation: begin deployment of 3 tables per school in SY 2013; outfit all elementary classrooms by SY 2016, K-2. Budget: $31,500 for initial deployment and professional development. Additional funding, $52,000.

Objective 2.2: Deliver professional development for teachers and administrators on effective models that address the relationships in the TPACK (Technology Pedagogy and Content Knowledge) model.

Strategy 2.2.1: Focus PD time training on technological, content-technological, and technological-pedagogy knowledge centers. Evaluate: Identify sessions that follow TPACK design in upcoming PD at least 2 per year beginning in SY 2011-12. Budget: instructional materials, $500 annually.

Strategy 2.2.2: Create training sessions that are content-specific that utilize and increase technology integration. Evaluate: supervisor of instructional technology. Offer at least 3 courses per year that focus on content-specific technology integration beginning in SY 2011-12. Budget: $1000 annually for after-school instructors.

Strategy 2.2.3: Deliver professional development opportunities that model UDL principles. Evaluate: supervisor of instructional technology. Offer at least one course per year that addresses UDL principles. Budget: $1400 SY 2011-12, SY 2012-13 conference attendance.

Objective 2.3: Explore the use of new and emerging technologies to engage learners.

Strategy 2.3.1: Assemble a group/committee tasked with identifying emerging technologies that could positively impact instruction. Evaluate: technology department, ongoing. Publish and present report annually to school board. Budget: no direct cost.

Strategy 2.3.2: Leverage relationships with vendors to acquire loaner equipment for piloting emerging technologies. Evaluate: technology department, ongoing with vendors. Budget: no direct cost.

Strategy 2.3.3: Create a budget and systems to support pilot efforts. Evaluate: director of technology (secondary education). SY 2012-ongoing, $5500 annually.

Objective 2.4: Enable anytime learning among stakeholders utilizing online resources.

Strategy 2.4.1: Encourage teachers to use their blogs as a showcase for successful learning activities and student artifacts. Evaluate: building principals evaluate teachers and their blogging habits on frequency (once per week) and content of blogs. Budget: no direct cost.

Strategy 2.4.2: Encourage the use of social bookmarking (Diigo, Delicious) for sharing useful online resources. Evaluate: supervisor of instructional technology and ITRTs and media specialists. Standardize one social bookmarking service among all teachers by SY 2014-15. Budget: no direct cost, free resources.

Strategy 2.4.3: Utilize free Moodle and other online services to expand secondary course offerings. Evaluate: secondary guidance counselors, administrators, and supervisor of instructional technology. Plan to expand online offerings with self-built courses by SY 2012-13. Budget: SY 2012-13 upgrade Moodle server for students, $8000.

Strategy 2.4.4: Deploy tablet- and touch-based technologies for take-home use at a 1:1 ratio in secondary schools for access to Web-based learning resources and virtual textbooks. Evaluate: Evaluate current offerings in SY 2013-14, deploy at GMS in SY2014-15, deploy at GHS in SY2015-16. Budget: $560,000 estimated, from hardware lease renewed in SY 2014-15.

Objective 2.5: Support teachers by utilizing specialized technology expertise (TPACK) & personnel.

Strategy 2.5.1: Publish best practices through regular communications from the technology department (blog, wiki, e-mail newsletter, podcast series). Evaluate: ongoing responsibility of supervisor of instructional technology and ITRTs. Budget: no direct cost.

Strategy 2.5.2: Increase the current ratio of instructional technology resource teachers to 1:school. Evaluate: school board, superintendent, and technology department. Budget: Begin SY 2012-13 $50,000, SY 2013-14 $100,000, SY 2014-15 $150,000.

Strategy 2.5.3: Supplant the duties of the school-based ITRT to include technical, break/fix support. Evaluate: technology department. We can accommodate specialization of more personnel when they possess a wider skillset. Required by SY 2014-15. Budget: personnel accommodated above, through ITRT.

Objective 2.6: Utilize local consortia and organizations to add value to our technology practices.

Strategy 2.6.1: Maintain membership by technology personnel in the Virginia Society for Technology in Education and related organizations (ISTE, etc.). Evaluate: meet goal to send at least 50% of instructional technology team annually. Budget: $2000-10,000 annually for VSTE/ISTE conference.

Strategy 2.6.2: Maintain membership in Greater Richmond Area Educational Technology Council (GRAETC, EdTech). Evaluate: ongoing technology department participation, report findings to team. Budget: travel ($400 annually for mileage).

Strategy 2.6.3: Maintain membership in MERC through VCU to benefit from research being conducted on instructional practices. Evaluate: technology department participation. Budget: travel ($300 annually for mileage), $3629/annually membership cost from instructional budget.

Strategy 2.6.4: Participate in local grant consortia to supply hardware/software to the division (CVC, ScriboDigita, JabrDigitAL). Evaluate: supervisor of instructional technology. Budget: travel ($400 annually for mileage) paid by grant.

Strategy 2.6.5: Participate in RSCPS; utilize services provided by WCVE Community Ideas Stations. Evaluate: duty currently assigned to high school media specialist. Budget: travel ($250 annually for mileage).

Strategy 2.6.6: Maintain membership in Virginia PowerSchool Users Group Evaluate: Director of Technology. Budget: $200 for county membership annually.

Strategy 2.6.7: Participate in PowerSchool University annual training. Evaluate: Director of Technology Budget: Two participants $2000 tuition per person plus $2000 in expenditures (travel, lodging, etc.) annually.

**Application**

GOAL 3: Provide students with opportunities to apply technology effectively to gain knowledge, develop skills, and create and disseminate artifacts that reflect their understandings.

Objective 3.1: Create opportunities throughout the curriculum for practicing the division's 12 defined twenty-first century skills.

Strategy 3.1.1: Define and develop a twenty-first century skill strand throughout the division's K-12 curriculum. Evaluate: to be completed by SY 2013-14 by lead teachers/ department chairs in conjunction with supervisor of instructional technology. Budget: 20 teachers $25/hour @16 hours in SY 2013-14 ($8000).

Strategy 3.1.2: Publish a G21 best practices digital warehouse of tested project-based lessons. Evaluate: to be undertaken by supervisor of instructional technology by expanding our already-existing G21 Project Faire initiative; evaluated as part of job responsibilities by director of technology. Budget: no direct cost.

Strategy 3.1.3: Continue the deployment of G21 projects and planning sessions focused on the development of twenty-first century skills. Evaluate: instructional team in conjunction with supervisor of instructional technology. Budget: no direct cost.

Strategy 3.1.4: Develop a G21 Teacher's Academy to focus resources on classroom reform utilizing technology with a twenty-first century skills-based curriculum. Evaluate: ITRTs and supervisor of instructional technology to invoke G21 Teacher Academy with grant funding between SY 2012-15. Budget: $14,000-50,000 dependent solely upon grant funding (Shovel Ready Project)

Objective 3.2: Increase the amount of project- and problem-based learning experiences throughout the division's classrooms.

Strategy 3.2.1: Implement a Children's Engineering program at the elementary level. Evaluate: supervisor of instructional technology by SY 2012-13. Budget: $500 annually for supplies, $2500 startup cost for training from instructional budget.

Strategy 3.2.2: Provide professional development opportunities to help teachers plan and manage projects that incorporate technology Standards of Learning in their classrooms. Evaluate: ongoing, supervisor of instructional technology and school administrators. Budget: already identified; $1000 annually for after-school instructors. SY 2013-14, upgrade Moodle server for staff development, $8000.

Strategy 3.2.3: Increase the number of G21 projects undertaken by teachers each school year. Evaluate: By SY 2014-15, teachers on average will complete 3 or more G21 projects planned in conjunction with instructional leadership team, and supervisor of instructional technology and school-based ITRTs. In SY 2009-10, the requirement for teachers is set at 1 one such project during the academic school year. Budget: no direct cost.

Objective 3.3: Meet the needs and interests of all students with through providing elective course offerings in technology.

Strategy 3.3.1: Explore developing technology curriculum for following areas: 3D design, Computer Programming, Information Systems Management, Computer Science, Computer Networking, Game Development, Computer Repair. Evaluate: technology team and secondary administration. Budget: hire of new high school technology instructor @ $50,000 in SY 2014-15.

Strategy 3.3.2: Expand the technology curriculum with at least 2 new courses by SY 2014-15. Evaluate: Director of Technology (secondary education) and school-based administration. Budget: already identified, 3.3.1.

Objective 3.4: Increase the number of collaborative learning activities within and outside the division for students.

Strategy 3.4.1: Partner with neighboring school divisions' classrooms. Evaluate: Increase number of G21 inter-school projects each year at each building; evaluated by building principal. Budget: $200 annually for travel.

Strategy 3.4.2: Adopt a "sister school" alliance with foreign countries. Evaluate: Establish at least one international sister school for each building in Goochland County by SY 2013-14; supervisor of instructional technology and building administrators, superintendent. Budget: no direct cost.

Objective 3.5: Embrace the Virginia Technology SOL throughout the curriculum.

Strategy 3.5.1: Target technology SOL in the division's curriculum. Evaluate: By SY 2014-15, identify the full complement of Virginia technology SOL in each curriculum strand and area, undertaken by lead teachers/department chairs in coordination with building-level ITRTs. Budget: instructional budget, lead teachers.

Strategy 3.5.2: Teachers will identify VA Technology SOL in lesson plans. Evaluate: division wide by SY 2013-14. Budget: no direct cost.

Strategy 3.5.3: Assess the Virginia Technology SOL in grades 5 and 8. Evaluate: Beginning in SY 2011-12, begin implementation of a valid technology test in grades 5 and 8 with coordinator of testing, ITRTs, and supervisor of instructional technology. Budget: development of technology questions added to marking period tests by ITRTs; $1000 per grade level for test.

Strategy 3.5.4: Target the Virginia Technology SOL in subject-specific contexts in marking-period tests and in secondary course final examinations. Beginning in SY 2012-13, begin modification of marking period exams by lead teachers/department chairs in conjunction with building-level ITRTs; completed by SY 2014-15. Evaluate: secondary assistant principals. Budget: no direct cost.

Strategy 3.5.5: Maintain availability of SOL-aligned and ISTE NETS-S-aligned software and subscription services that work with current hardware and infrastructure. Evaluation: Review software and online subscription services that are evaluated to offer good value for money, meets standards and curricular needs. Budget: ~ $20-30,000 annually.

Strategy 3.5.6: Standardize a keyboarding education program for elementary learners in grades 2-5. Evaluate: by SY 2011-12; responsibilities: director of elementary education, ITRT. Budget: $15,000 in SY 2013-14 for additional “Writer” carts for keyboard practice.

Objective 3.6: Empower administrators to evaluate good teaching and learning in an effort to support teachers.

Strategy 3.6.1: Develop an observation instrument that evaluates teaching of 21st century skills, project- and problem-based approaches centered on the division's G21 model. Evaluate: supervisor of instructional technology with instructional leadership team by SY 2011-12. Budget: no direct cost.

Strategy 3.6.2: Provide professional development to administrators on evaluating 21st century teaching and learning. Evaluate: Ongoing; director of technology in conjunction with supervisor of instructional technology, annually. Budget: no direct cost; leadership retreat.

Strategy 3.6.3: Administrators provide timely feedback on observations that meet the expectations of both boomer generation through generation y teachers using technology. Evaluate: in conjunction with a new instrument, ongoing beginning in SY 2012-13. Budget: no direct cost.

**Tools**

GOAL 4: Provide students and staff with access to authentic and appropriate tools to gain knowledge, develop purposeful skills, extend capabilities, and create and share artifacts that demonstrate student achievement.

Objective 4.1: Provide opportunities for secondary students to obtain industry certifications (software, hardware).

Strategy 4.1.1: Increase class opportunities at the secondary level. Evaluate: Director of Secondary Education, high school principal.

Strategy 4.1.2: Increase the number of secondary teachers with current industry certifications. Evaluate: Following guidelines of federal Perkins Grant, 5 teachers by SY 2015-16. Budget: funded through CTE budget.

Strategy 4.1.3: Obtain the software/hardware needed to provide the industry certification. Evaluation: Director of Technology. Budget: Upgrade of FinalCut Suite, $2000 in SY 2012-13. Upgrade of Adobe Suite, $10,000 in SY 2012-13.

Objective 4.2: Provide students online learning opportunities inside and outside of the division.

Strategy 4.2.1: Continue participation in the Virtual Virginia program. Evaluation: high school administration. Budget: no direct cost.

Strategy 4.2.2: Explore partnerships with area school divisions to share instructors using available courseware software (Moodle, Blackboard). Evaluation: Director of

Secondary Education to evaluate annually; at least one partnership by 2013-14, three or more partnerships by 2015-16. Budget: no direct cost.

Strategy 4.2.3: Utilize available tools (Moodle, iTunes U) to provide enrichment opportunities to students within the division from home. Evaluation: Selection and evaluation of grade- and subject-level tools annually by instruction team. Budget: no direct cost, seeking free and open-source tools.

Strategy 4.2.4: Participate in the Center Stage partnership to gain expertise in media production and work towards industry certification. Evaluation: CenterStage Partnership Committee. Budget: $150 for FinalCut Pro Certification Test: 1 teacher, SY 2010-11; 5 students by SY 2012-13 ($900).

Objective 4.3: Provide supports of time and technology to share content and expertise among staff in the division.

Strategy 4.3.1: Provide planning time for teachers to collaborate with colleagues both across the curriculum and between grade levels. Evaluation: school principals. Budget: no direct cost.

Strategy 4.3.2: Provide online storage for web-based content sharing (Wiki server, blogs, social network) and e-mail. Evaluation: technology team for support and implementation. Budget: costs for some of these services are addressed with services from other strategies. $1000 annually for e-mail server subscription, $600 in SY 2009-2010 for RAID backup for e-mail archiving.

Objective 4.4: Provide students with Internet-capable hardware solutions that foster opportunities for multimedia creation.

Strategy 4.4.1: Increase the machine-to-student ratio of technology to include network connected laptop, desktop, and handheld devices for students. Evaluate: director of technology on allocation of funding from lease and state SOL-readiness funds. Budget: $45,000 in SY 2009-10; $140,000 in SY 2010-11 (state and local funding), $300,000 annually towards lease 2011-2015. Also see Strategies 2.1.4, 2.4.4.

Strategy 4.4.2: Evaluate emerging technologies to target instructional best-practices. Evaluate: technology department, ongoing. Budget: any direct costs are reflected in Strategy 2.3.3.

Strategy 4.4.3: Provide device check-out for students. Evaluate: expand pilot begun in SY 2009-10; technology department and library media specialists. Budget: $2500 earmarked for repairs/replacement annually. See Strategy 2.4.4.

Strategy 4.4.4 Provide students with cloud-based solution (GoogleApps, Microsoft Office Live) to accommodate student access to coursework digital files regardless of location. Evaluate: continue to expand pilot in SY 2009-10 to accommodate all secondary students in SY 2010-11. Budget: e-mail archiving services, SY 2011-12 onward @ $4500 annually.

Strategy 4.4.5: Maintain and modernize the TV studio with digital workflow at the high school/middle school complex. Evaluate: Coordinator of technical services for implementation. Budget: Funding from technology with additional sources: in SY 2010-11 $15,000; SY 2011-12 $15,000, SY 2012-13 $50,000.

Strategy 4.4.6: Repair and maintain computers and associated peripherals in good working condition throughout the life of ownership. Evaluate: annually by technology team. Budget: $8,000-16,000 annually.

Objective 4.5: Provide teachers and administrators with multimedia authoring capabilities using currently implemented platforms.

Strategy 4.5.1: Provide MacBook or MacBook Pro laptop computers for each teacher and administrator. Evaluate: ongoing; technology department. Budget: $100,000 annually towards lease plan for SY 2011-2015.

Strategy 4.5.2: Provide webmail access to teachers. Evaluate: ongoing; technical coordinator responsibility. Budget: included in email server license.

Strategy 4.5.3: Maintain currently deployed software tools for communication, record keeping, productivity. Examples include: iWork, iLife, WordPress, Moodle, ExpressionEngine, etc. Evaluate: standardize platforms to reduce additional professional development costs. Budget: Software costs are referenced already elsewhere.

Objective 4.6: Empower all school staff with telecommunication services between division buildings and the world.

Strategy 4.6.1: Provide mobile telecommunication devices to administrators to promote safety and to provide access to realtime student information. Evaluate: 100% administrators by SY 2011-12. Budget: $18,000 annually.

Strategy 4.6.2: Provide wireless capabilities outside of county network. Evaluate: use of "smart phones" with wireless internet. Budget: $7,000 annually

Strategy 4.6.3: Provide internal VOIP through a cooperative partnership with the county government. Evaluation: currently deployed. Budget: Maintenance cost $5,000 per year.

**Results**

GOAL 5: Use technology to support a culture of innovation throughout the division, with a focus on encouraging data-driven decision making for improving teaching and learning practices.

Objective 5.1: Empower teachers to be able to take the "pulse" of learners with data reporting tools.

Strategy 5.1.1: Utilize informal and formal formative assessment strategies in the classroom (Activotes, Moodle, polls). Evaluation: tailor technology professional development efforts based on feedback from teachers and ITRTs on needs. Use feedback for this plan and during year to meet teachers' needs. Budget: purchase of additional Activotes at $3500/case in SY 2012-13 ($21,000 for 12 classrooms).

Strategy 5.1.2: Utilize informal and formal formative and summative assessment data to drive instructional planning. Evaluate: deployment and evaluation by instructional team and building administration as part of each school's school improvement plan (SIP). Use system to accommodate 100% of marking period tests by SY2011-12. Budget: Just5Clicks subscription at $12,300/year annually.

Objective 5.2: Communicate continual academic progress with students and families.

Strategy 5.2.1: Utilize teacher blogs and division website to share artifacts of learning and communicate instructional goals. Evaluate: ongoing, evaluated by building principals and supervisor of instructional technology. GCPS teachers have identified updates to be done to blogs on a weekly basis. Budget: no direct cost, utilizing blogging server referenced above.

Strategy 5.2.2: Accurately report student grades and attendance using PowerSchool SIS, utilizing parent access features. Evaluate: ongoing, evaluated by information technology specialist in coordination with building principals as part of teacher evaluations. Budget: referenced above, PowerSchool yearly subscription and training.

Objective 5.3: Share best practices and learning success stories.

Strategy 5.3.1: Maintain a wiki-based curriculum that shares high-quality resources for instruction. Evaluate: quality of materials will be evaluated continually by directors of secondary and elementary education. Lead teachers and department chairs to add at least one resource/semester. Budget: no direct cost, using current web server and lead teacher funding.

Strategy 5.3.2: Provide and encourage use of a social networking space for teachers to share best practices and learning successes. Evaluate: use will be evaluated and guided by the office of the superintendent. Budget: no direct cost. Ning without ads is $19/month.

Objective 5.4: Support administrative responsibilities with solutions that save and maintain resources.

Strategy 5.4.1: Develop an affordable, customized human resources database system for tracking employee accounting (HR, leave, new hires). Evaluate: ongoing, technical

coordinator with HR personnel at CO. Budget: $2500 for modifications, if needed over 6-year period.

Strategy 5.4.2: Partner with county government to provide connectivity services (Internet, wireless, telephone). Evaluate: ongoing, technical coordinator with county technology personnel. Budget: shared costs, referenced above.

Strategy 5.4.3: Partner with county government to share burden of accounting system and payroll services. Evaluate: ongoing, technical coordinator with director of operations/finance and county government. Budget: no direct cost.

Strategy 5.4.4: Maintain high standards of data quality through participation in the Investing in Data Quality (IDQ) program by the VA DOE. Evaluate: Evaluate data quality plan by end of SY 2011-12. Budget: no direct cost.

Objective 5.5: Support classroom teachers with technology that supports TPACK model with engaged learners.

Strategy 5.5.1: Continue deployment of interactive white boards, with connected speakers, video projection, and response system. Evaluate: check yearly on updates with IWBs for best-fit solutions. Budget: Outfit elementary classrooms @ $35,000/year in SY 2012-13, 2013-14, 2014-15.

Strategy 5.5.2: Review and revise the technology plan on an annual basis to reflect budgetary realities, impact on instruction, and changing stakeholder support and needs. Evaluate: yearly review by planning committee. Budget: no direct cost.

# Budget Matrix

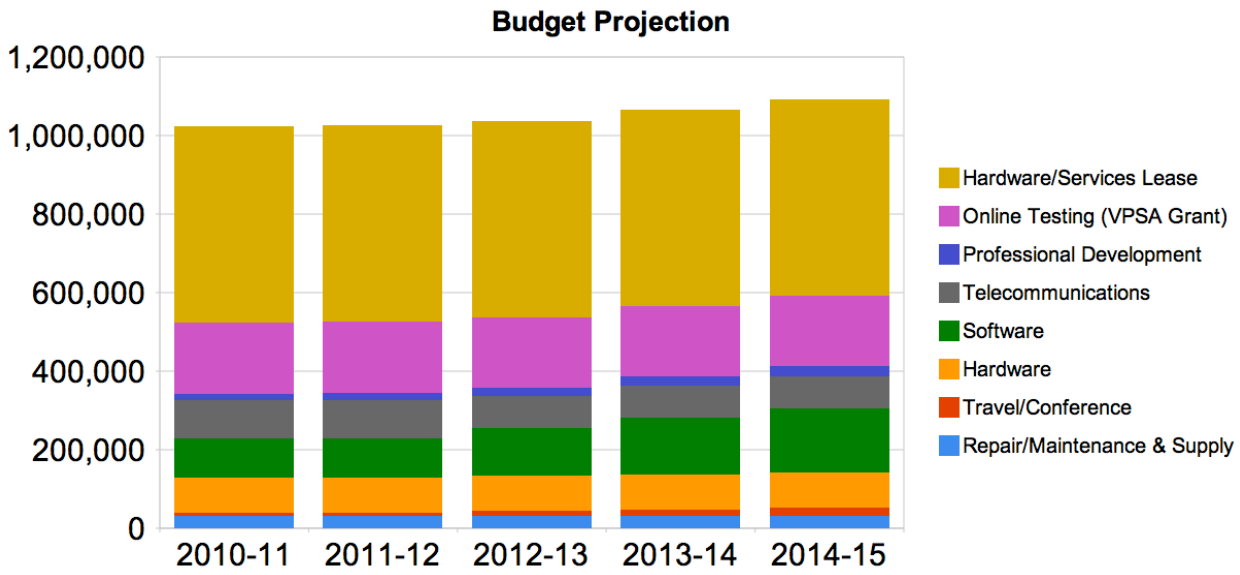
The budget for the next five years has been projected for technology, which includes telecommunications and administrative technology in addition to hardware, software, and services used for instruction. We plan to update this budget projection each school year based around several factors, including county budget projections, school division budget projections, and our success in meeting the goals, objectives, and strategies of this plan.

**Table 2:** Budget estimation projection, 5 years.

| Categories | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 |
|---|---|---|---|---|---|
| Repair/Maintenance & Supply | $32,000 | $32,000 | $32,000 | $32,000 | $32,000 |
| Travel/Conference | $8,000 | $8,000 | $12,000 | $16,000 | $20,000 |
| Hardware | $89,000 | $89,000 | $89,000 | $89,000 | $89,000 |
| Software | $100,000 | $100,000 | $122,000 | $144,000 | $164,000 |
| Telecommunications | $96,000 | $96,000 | $81,000 | $81,000 | $81,000 |
| Professional Development | $18,000 | $20,000 | $22,000 | $24,000 | $26,000 |
| Online Testing (VPSA Grant) | $180,000 | $180,000 | $180,000 | $180,000 | $180,000 |
| Hardware/Services Lease | $500,000 | $500,000 | $500,000 | $500,000 | $500,000 |
| **Total** | $1,023,000 | $1,025,000 | $1,038,000 | $1,066,000 | $1,092,000 |

In the graph that follows, you can see the comparison of the technology budget across the categories used above.

**Figure 2:** Budget Projection in stack chart format.



# Appendices

At the start of our technology planning process, we met to devise questionnaires for four stakeholder groups: students, parents, teachers, and administrators. This process not only helped us think about all the ways technology affects our jobs as educators, but also what kinds of information we would like to know to improve the role technology plays in running our organization, affecting communication, and affecting student achievement.

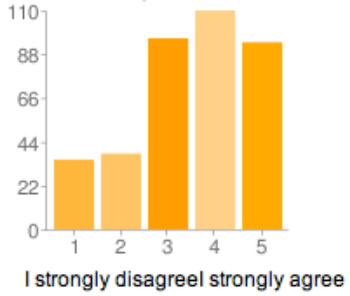
The results helped us form many of the strategies and objectives in this plan. Other questions and their responses will allow us to better tune efforts in professional development, communication, and building awareness around hardware and software available to teachers, students, and administrators.

Higher numbers in Likert scale-like responses are always more positive.

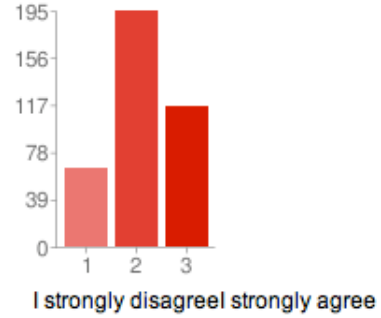
**Appendix 1: Student Survey Responses**
For the student survey, we received 379 responses in April-June, 2010 using an instrument delivered using Google Docs.

We have adequate access to technology at school.

We have adequate access to software that helps me learn.



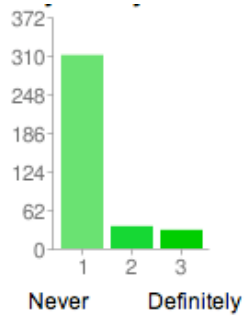

We have adequate Internet bandwidth in my school.



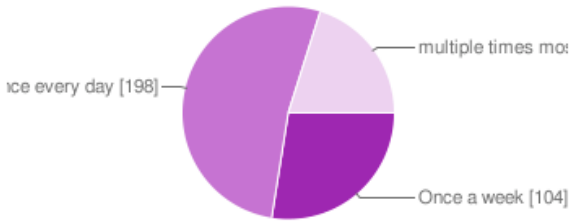

Which of these topics have your teachers covered in class?

How to choose a good password? 29%
Chatting with strangers? 42%
Keeping personal details private? 69%
Not participating in cyberbullying? 48%
Asking for permission from an adult before making an online purchase? 34%

Do you feel you have ever been bullied online?

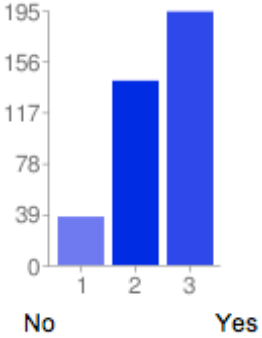



I use technology at my school...

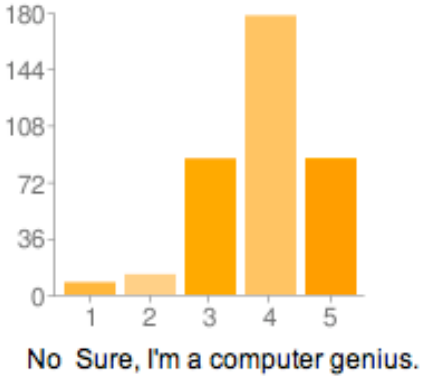



| | | |
|---|---|---|
| Once a week | **104** | 27% |
| almost once every day | **198** | 52% |
| multiple times most days | **76** | 20% |

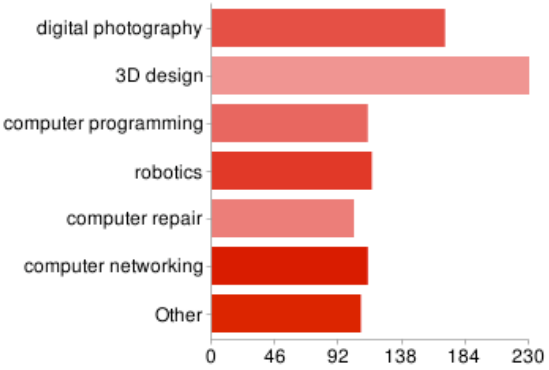
Do you think you are able to apply your knowledge of working with technology in real-world situations?



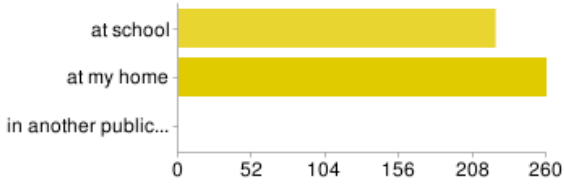

Do you feel that you can use technology well?



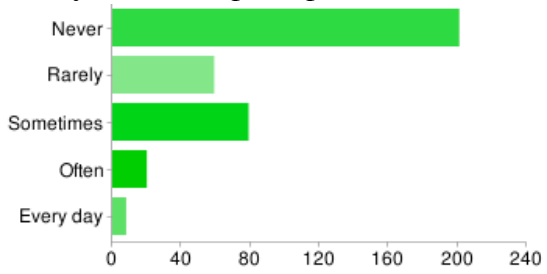

What types of technology classes would you like to see offered in your school?



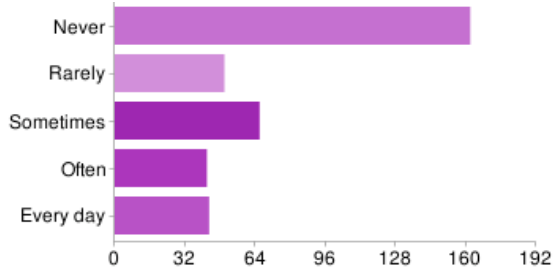

In which environments do you feel strongly about knowing how to stay safe online?



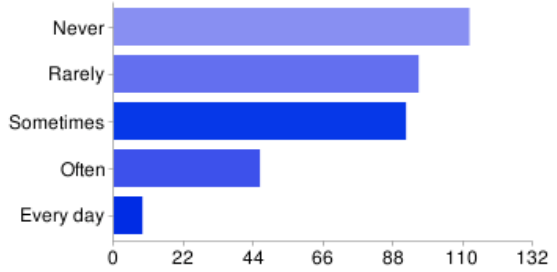
I use technology at school to... - communicate with my teacher or principal



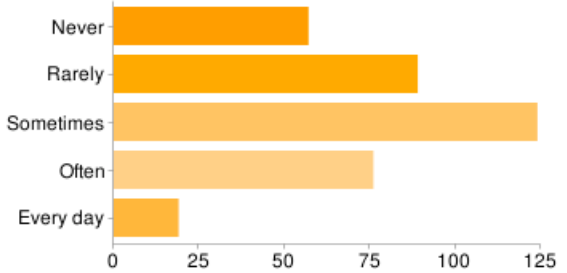

I use technology at school to... - communicate with my peers



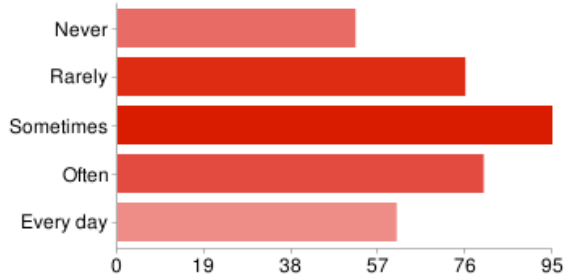

I use technology at school to... - participate in a simulation



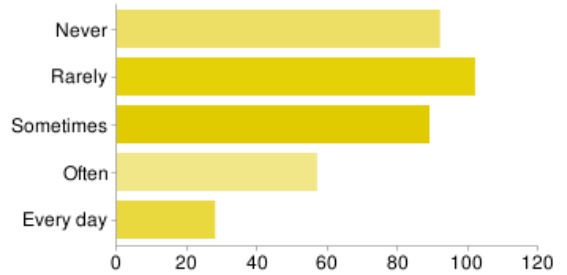

I use technology at school to... - play games that teach me



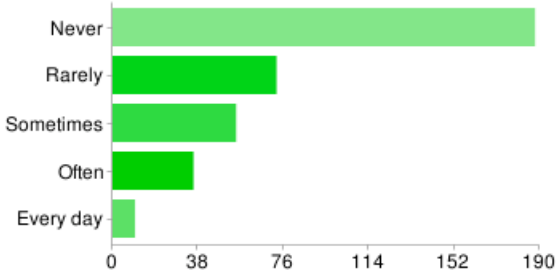

I use technology at school to... - express my creativity



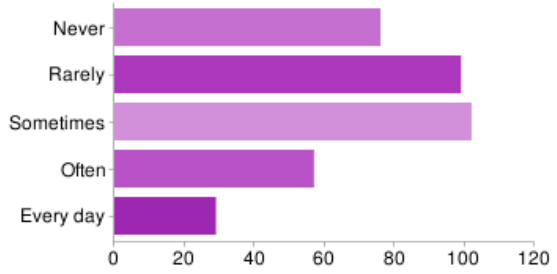

I use technology at school to... - develop my skills in language arts (English)



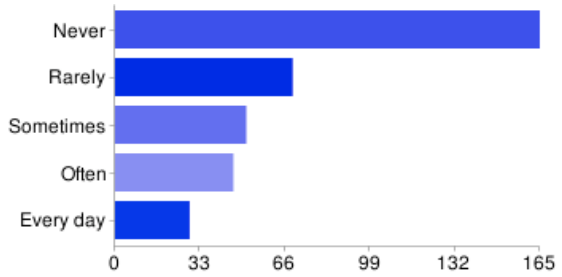

I use technology at school to... - develop my skills in a foreign language



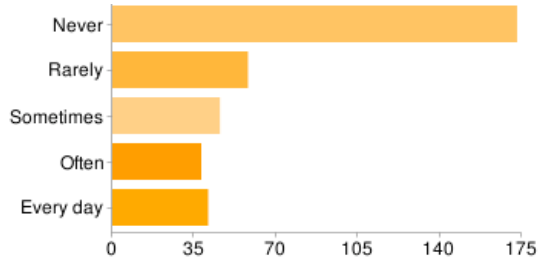

I use technology at school to... - develop my skills in mathematics



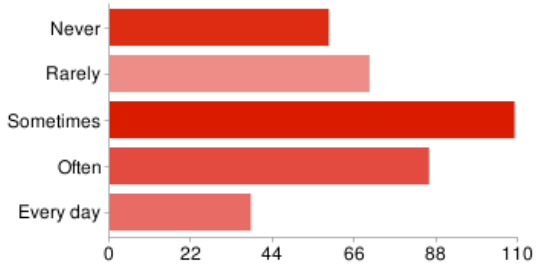
I use technology at school to... - develop my skills in art



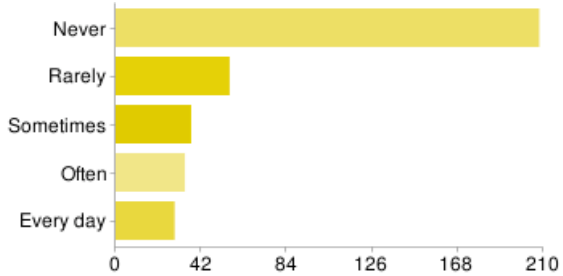

I use technology at school to... - develop my skills in music



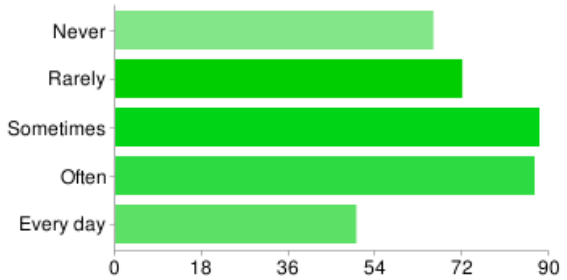

I use technology at school to... - develop my skills in science



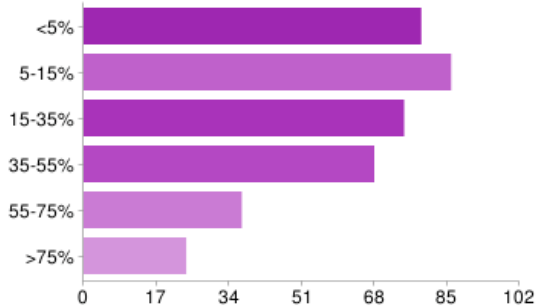

I use technology at school to... - develop my skills in physical education or health



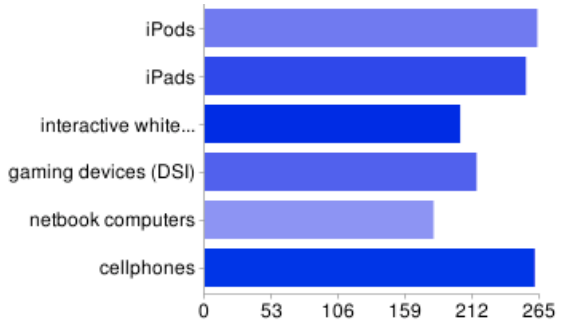

I use technology at school to... - develop my skills in social studies



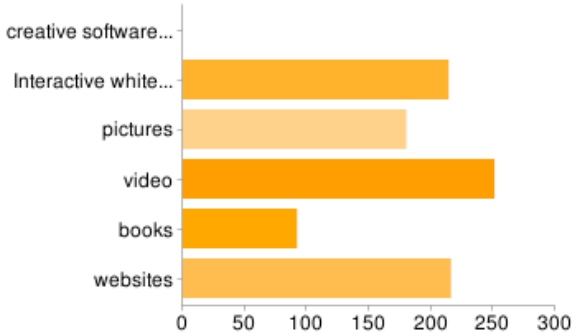

When you use technology or the Internet outside the normal school day, what percentage of time do you devote to learn something?



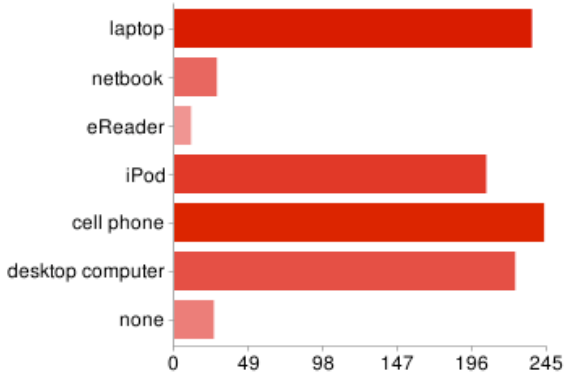
What tools would you like to see in the classroom?



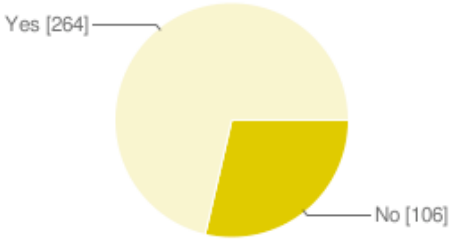

I prefer to learn from the following media:



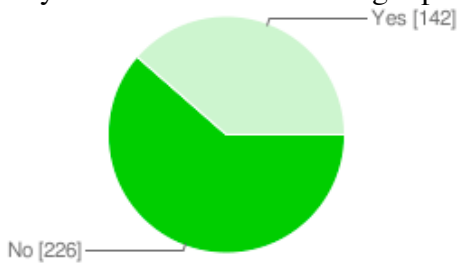

Which dedicated personal computing device do you use at home?



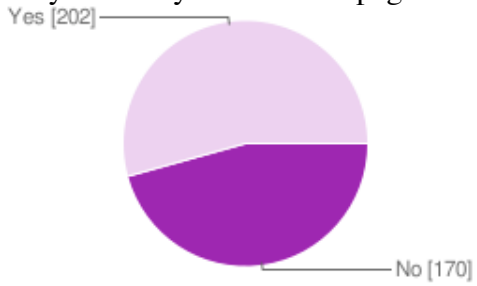

Do you have your own e-mail address?



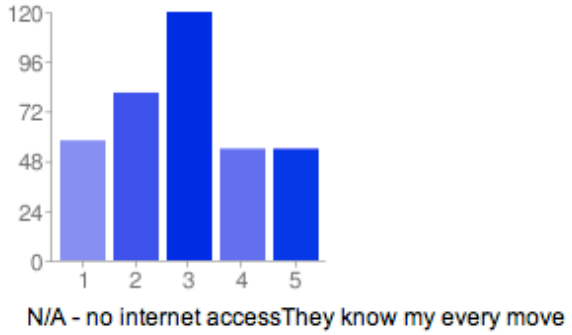

Do you use an instant messenger program?



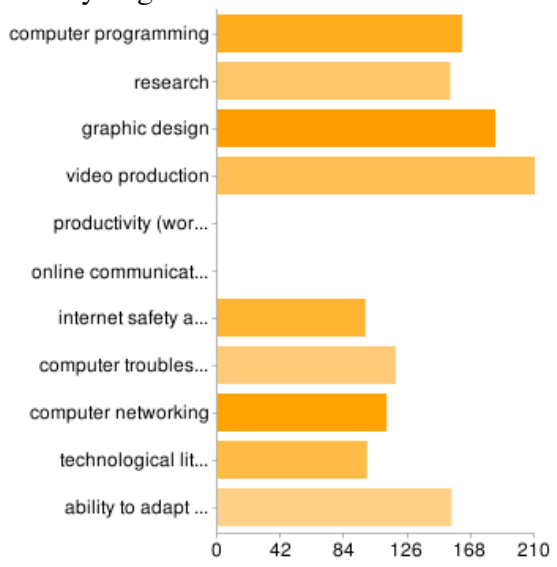

Do you have your own webpage?



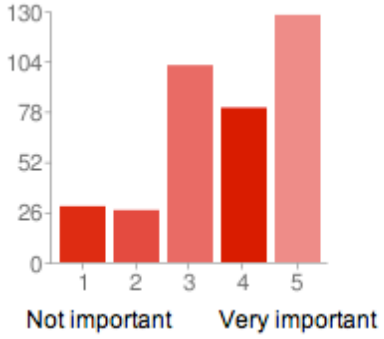
How well do my parents supervise my online activities at home?



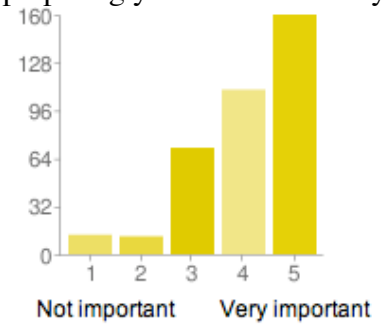

Regarding the technology available in your school, which skills would you value gaining before you graduate?




How important is getting prompt feedback via the Web?




How important do you feel technology is in preparing you for success in your future?

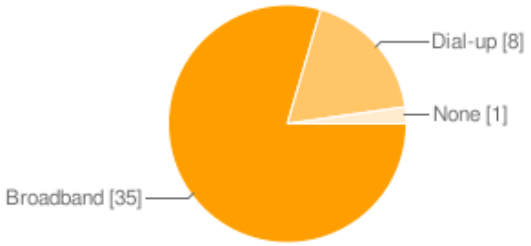


**Appendix 2: Parent Survey Responses**

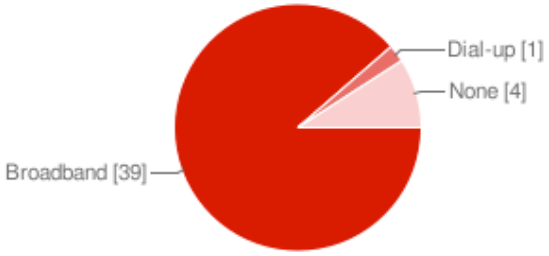
We received 44 parental responses from our survey that was delivered online in April-June, 2010. 26 respondents had an elementary student in the division, 13 had a middle schooler in the division, and 17 had a high schooler in the division. 91% of parents reported an awareness that their children are using technology to play games, and 18% reported an awareness that technology at home is used to create, watch, or upload videos online.

9% of respondents did not support a 1:1 computing initiative. 25% would support a 1:1 initiative if the device remained at school (overnight), and 64% would support a 1:1 initiative with a computing device going home.

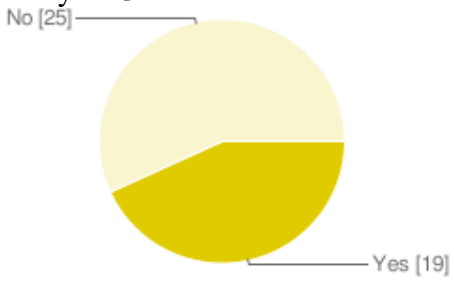
What type of Internet access do you have at home?



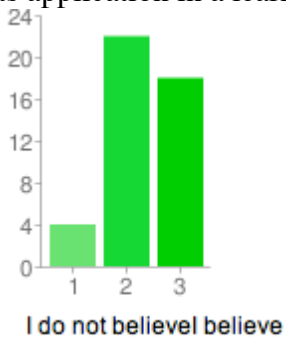

Do you have Internet access on the job?



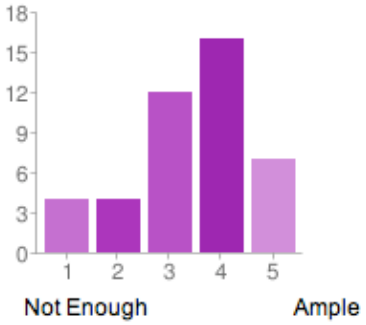

Have you used the Pamunkey Regional Library in Goochland to access the Internet?



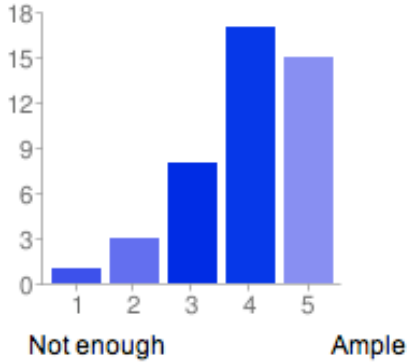

Do you believe that the school or school division has a clear vision of technology and its application in a learning environment?



Does your student have ample opportunities to use technology in the classroom in authentic real-world situations?



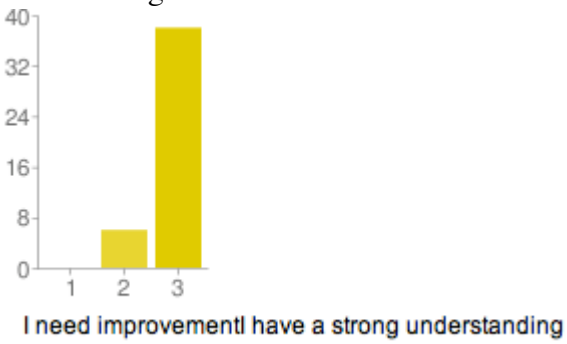

Does your student have ample opportunities to use technology at home in authentic real-world situations?



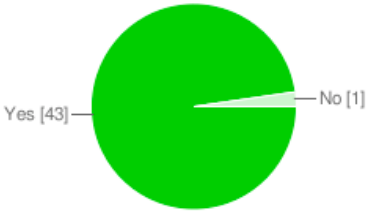

Do you feel that you are proficient with technology to assist your student?

Do you feel that your student uses technology in a safe and responsible manner and has a good understanding of how to be safe online?

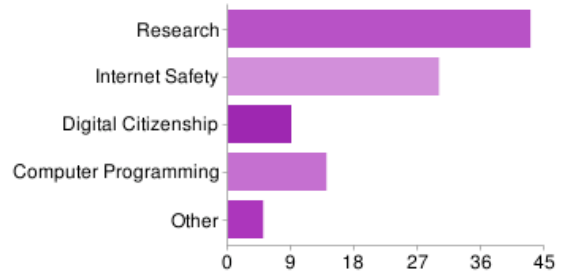
Do you feel that you use technology in a safe and responsible manner and have a good understanding of how to be safe online?



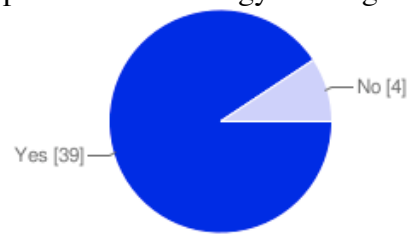

Do you monitor how your student uses technology?



What do you think are the most important skills/best practices with technology your student can develop at school?

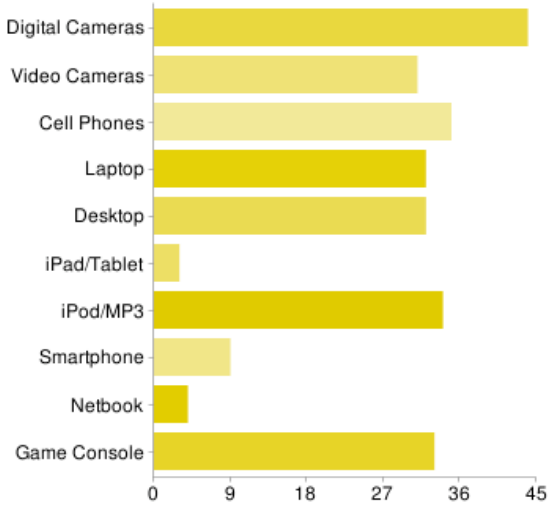



Would you be willing to take part in division-sponsored technology training in these areas?

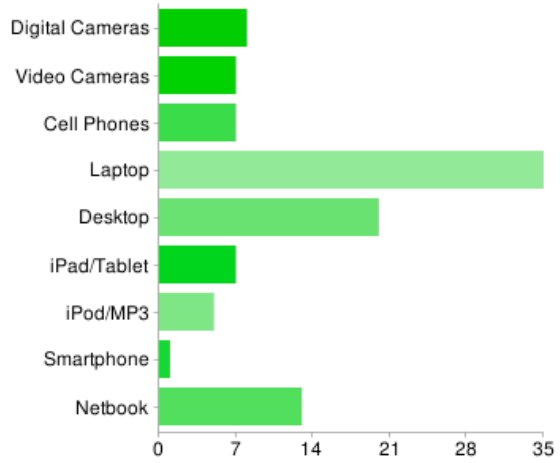



Which of the following twenty-first century skills would you encourage your teachers to help my child develop?

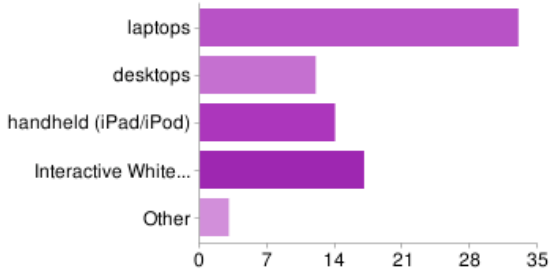
Which types of technology does your child have access to at home?



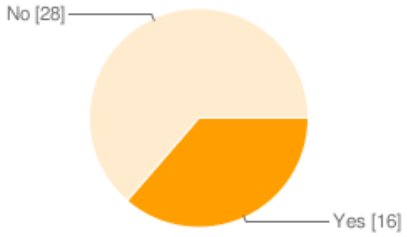

Which would you consider most important for your student at one of Goochland's schools?



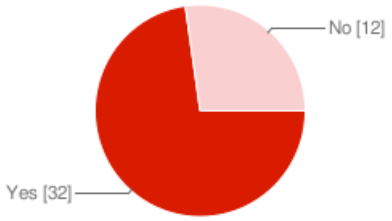

In the next five years, what types of technology should GCPS purchase?



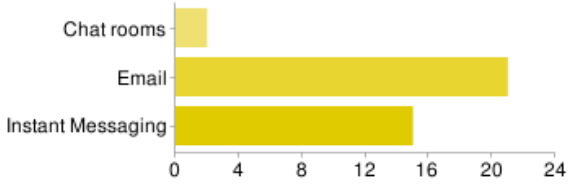
Does your child have a personal website?



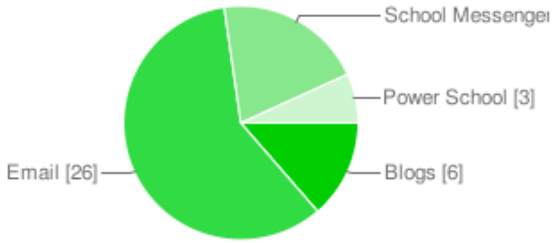

Do you have a personal website or participate in a social networking account?



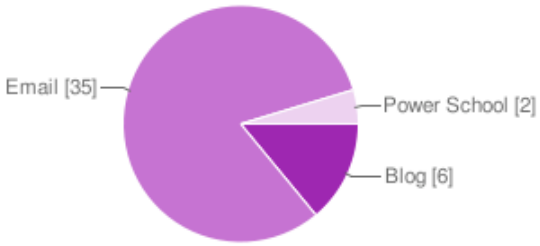

Does your child participate in . . .



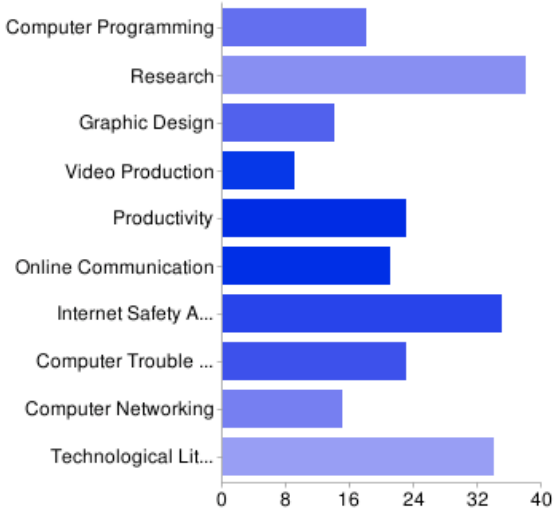

In communicating with/from administrators, which technology is best?




In communicating with/from teacher, which technology is best?



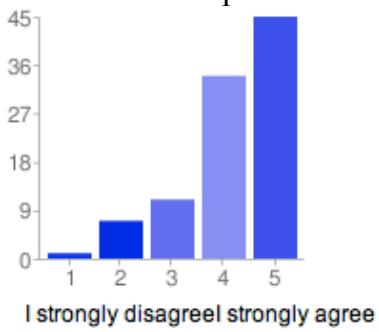

Regarding technology available in Goochland's schools, with what type of skills do you think students should leave knowing?



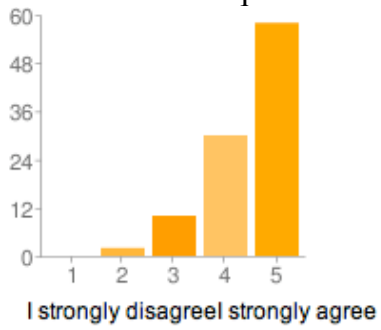
**Appendix 3: Teacher Survey Responses**

From among Goochland's teaching staff (225 teachers), we received 101 responses between April-June, 2010. 45% of respondents report having an interactive white board (IWB) in their room while 41% reported a desire to have one. 9% of respondents did not want an IWB in the classroom. 24% of teachers with white boards reporting said they use the IWB by itself, without peripheral technologies (document cameras, voting devices, etc.).

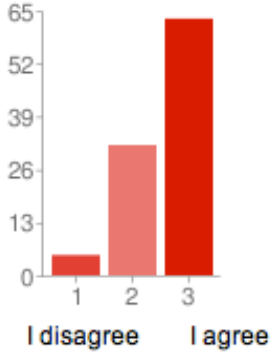
Students have adequate access to technology.



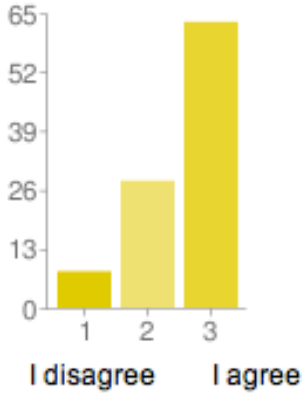

Teachers have adequate access to technology.



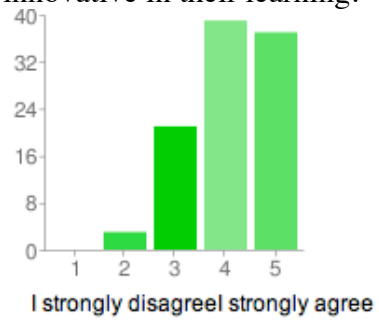

The school division has a clear vision for how technology should be used in my school/ building.



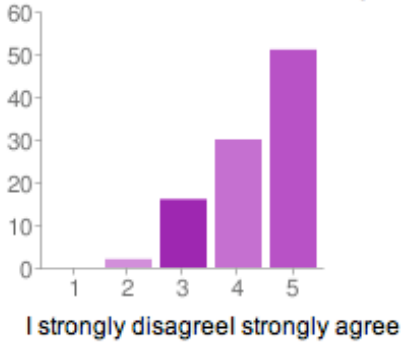

We have adequate bandwidth at our school for network communications.



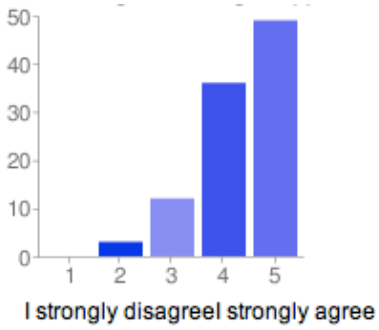
I have ample technologies available to encourage students to be creative and innovative in their learning.



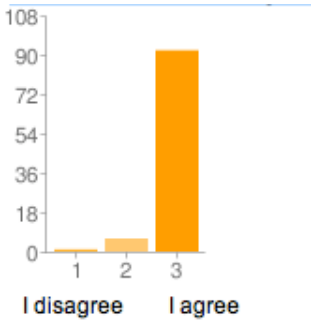

The school division offers adequate technology staff development opportunities.



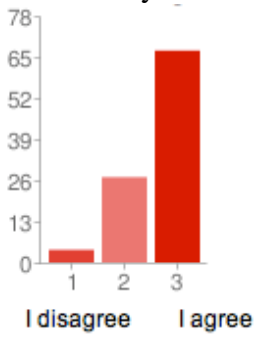

I feel I am given enough support to feel comfortable using technology in the classroom.



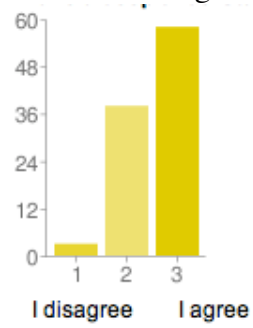

I understand online safety clearly enough to effectively pass on the information to my students.



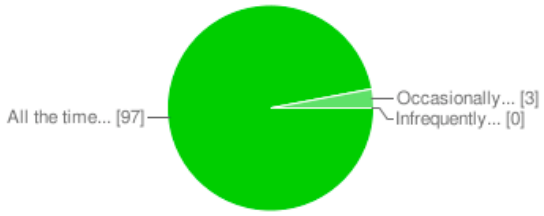

I understand digital citizenship clearly enough to effectively model it to my students.



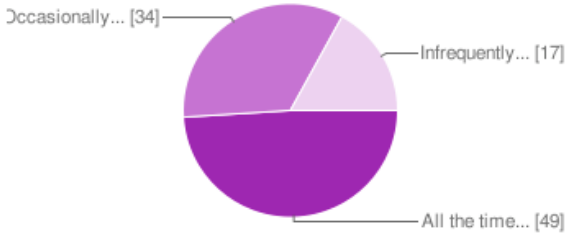

I have a deep understanding of copyright laws and the use of digital media.



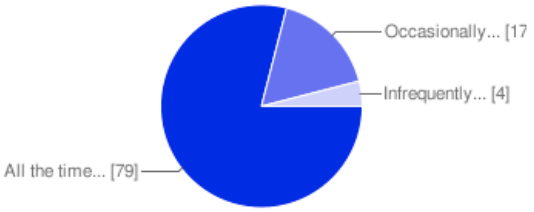
I use e-mail regularly to communicate with administration and colleagues.



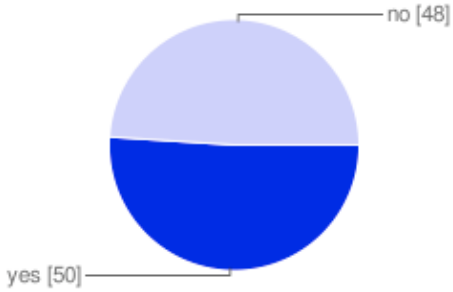

I use iChat (or other instantaneous communication tools) to regularly communicate with administration and colleagues.



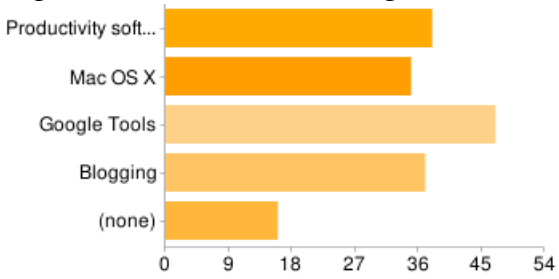

I use e-mail to communicate with parents and members of the community...



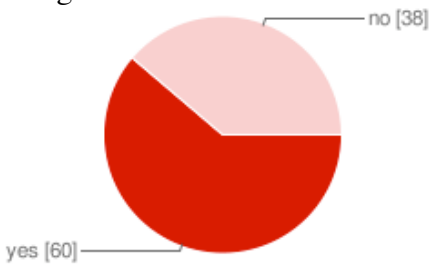

I take advantage of other professional development for using technology (productivity, instruction data record keeping) outside the division.



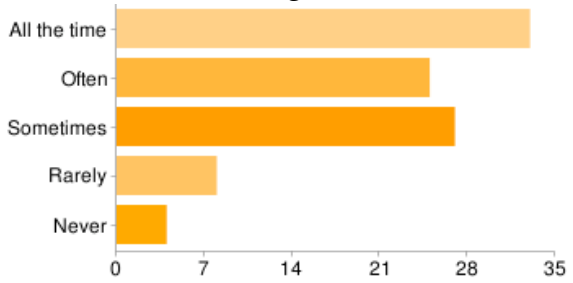

I would take advantage of support for computer basics in the following



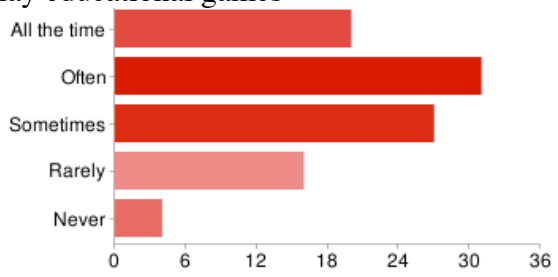

I would be interested in other tools for communicating with the parents and the school community in addition or in lieu of my teacher blog.



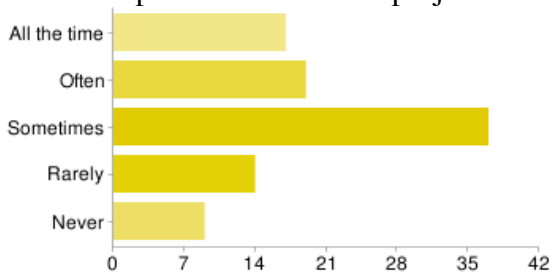
I regularly use technology with students to... - Find information (Google, Nettrekker, etc.)



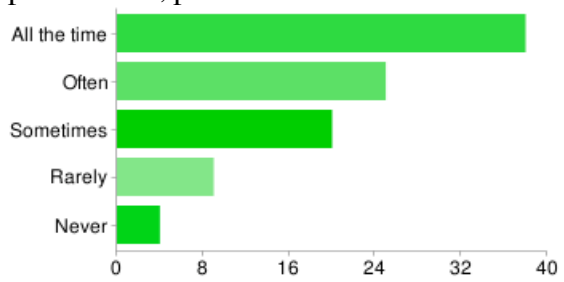

I regularly use technology with students to... - Play educational games



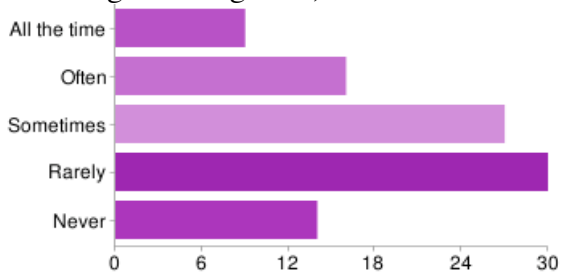

I regularly use technology with students to... - Create and publish multimedia projects



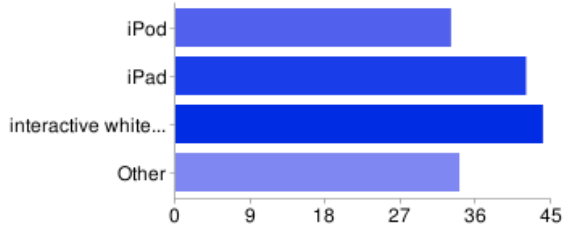

I regularly use technology with students to... - Create documents (word processing, spreadsheets, presentations



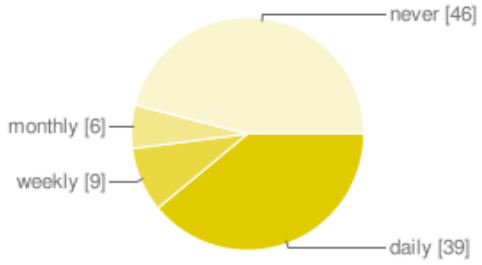

I regularly use technology with students to... - Solve problems (real-world problems that go beyond technology itself, such as event organization, comparison shopping, consulting how-to guides)



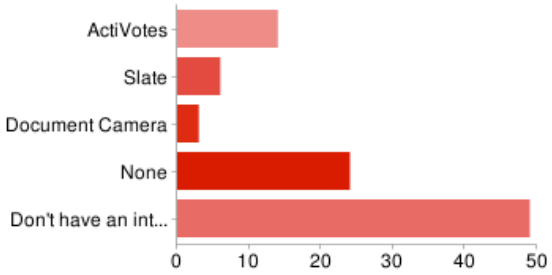

In the next five years, I would like to see the following in my classroom:



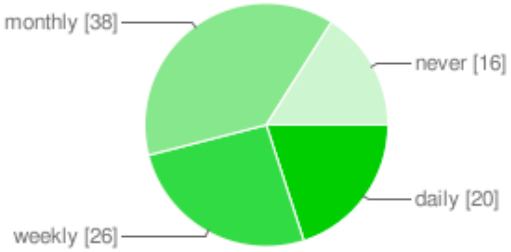
I use an interactive whiteboard in class



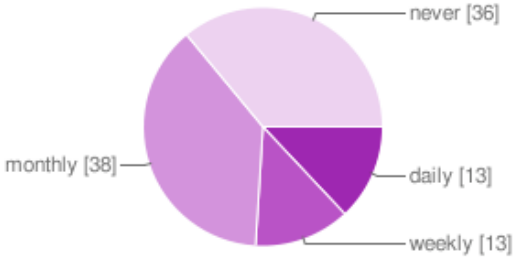

Fill in the blank: I use _____ with my interactive whiteboard.



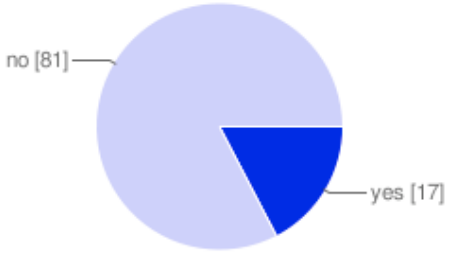

I use laptops in the classroom.



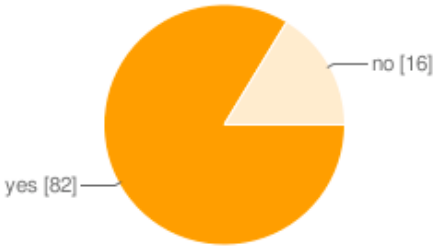

I use computers in the lab/LMC



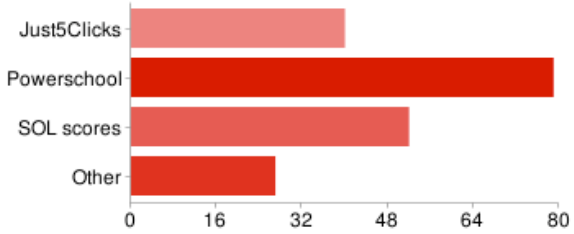

I have used iPods in my classroom.



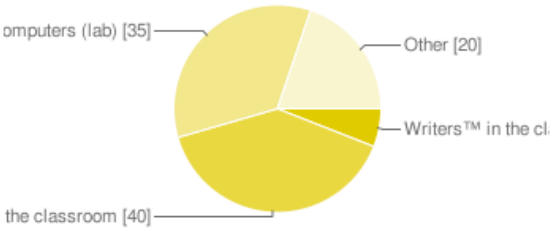

I know where to find data for data-driven decision making.



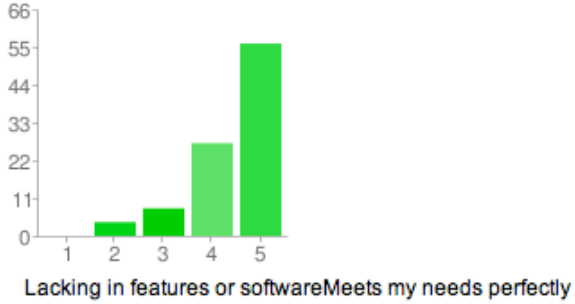

I use the following tools to make data-driven decisions.



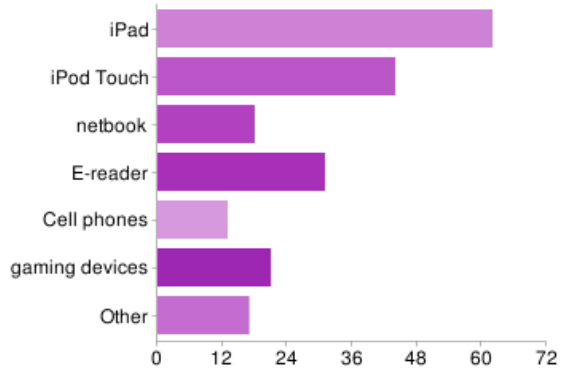

How do you feel it is best for students to learn keyboarding skills?



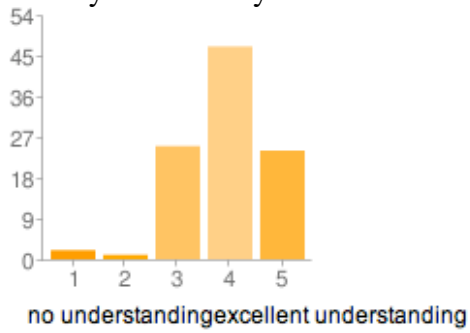
How does GCPS provided laptop meet your needs?



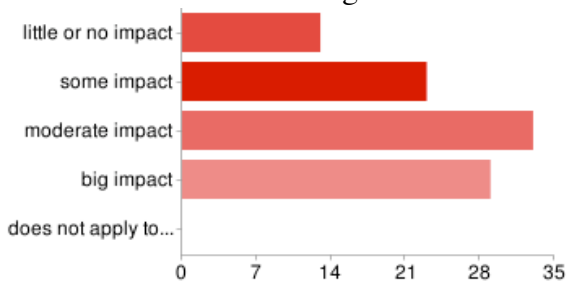

Understanding professional development might be required, which of the following emerging technologies would you be interested in using in your classroom in the future?



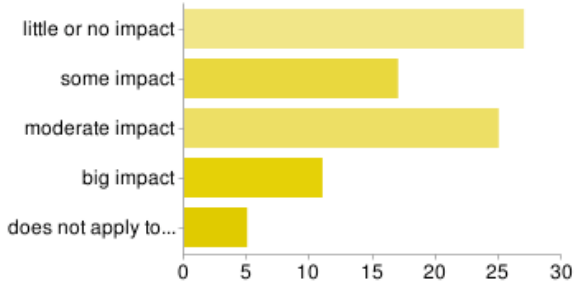

Rate your understanding of Goochland's G21 initiative to encourage student development of twenty-first century skills.



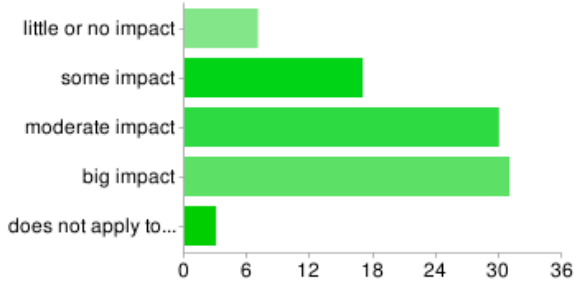

Which tools available to you now do you feel make the biggest impact towards student achievement? - teacher blogs



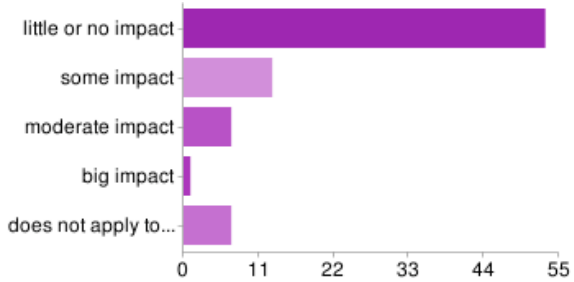

Which tools available to you now do you feel make the biggest impact towards student achievement? - Moodle



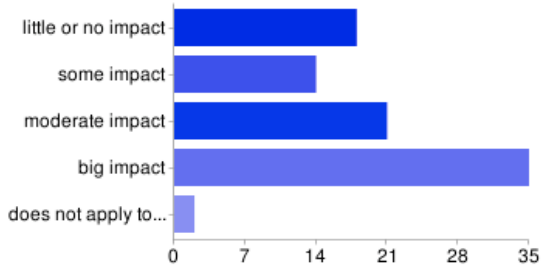

Which tools available to you now do you feel make the biggest impact towards student achievement? - online assessment tools (Quia, TestNAV, Just5Clicks)



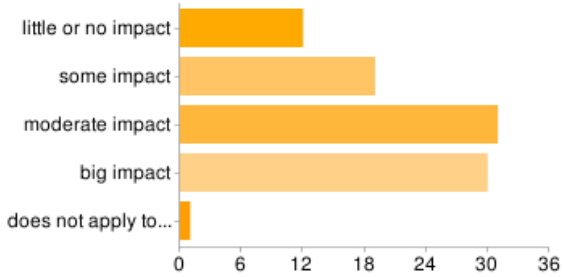
Which tools available to you now do you feel make the biggest impact towards student achievement? - Ning network



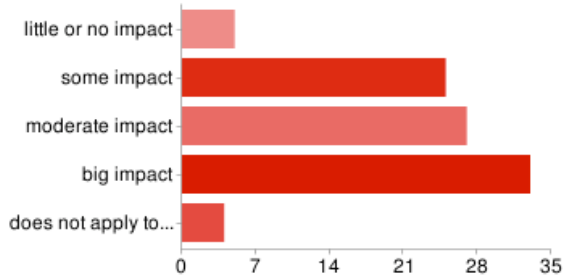

Which tools available to you now do you feel make the biggest impact towards student achievement? - external networks (websites for teachers, other teacher blogs, LinkedIn)



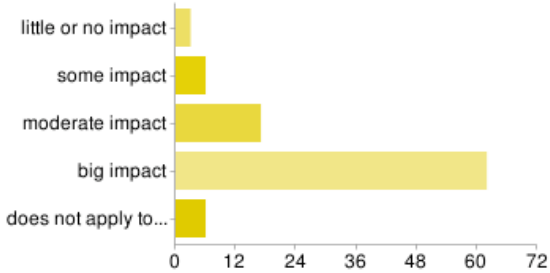

Which tools available to you now do you feel make the biggest impact towards student achievement? - Google Apps



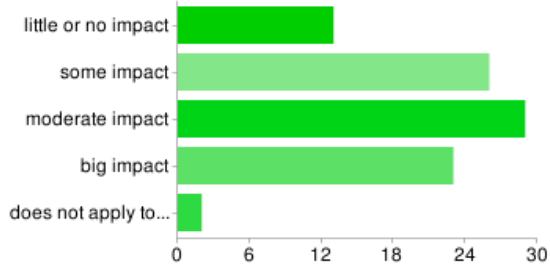

Which tools available to you now do you feel make the biggest impact towards student achievement? - iLife (iMovie, iPhoto, iWeb, GarageBand)



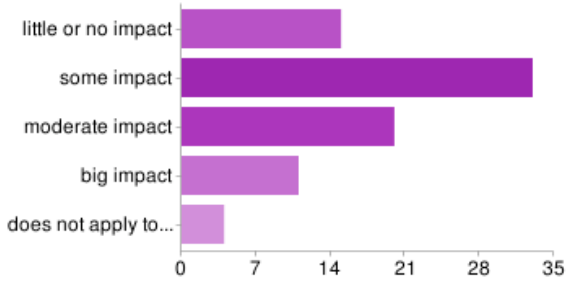

Which tools available to you now do you feel make the biggest impact towards student achievement? - Productivity (MS Office, iWork (Pages, Keynote, Numbers))



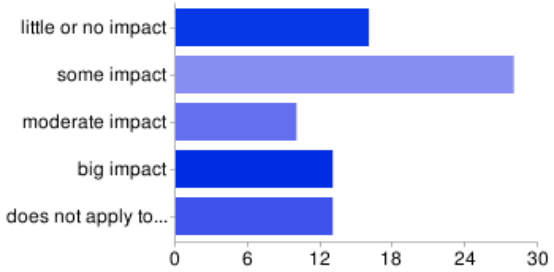

Which tools available to you now do you feel make the biggest impact towards student achievement? - ComicLife



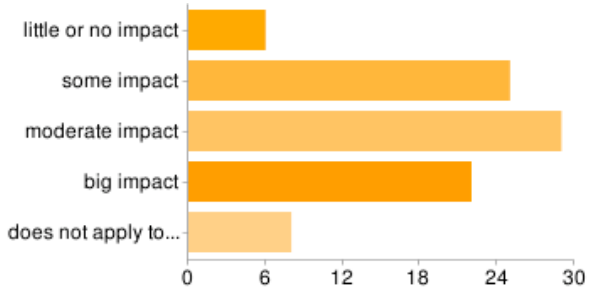
Which tools available to you now do you feel make the biggest impact towards student achievement? - Scratch



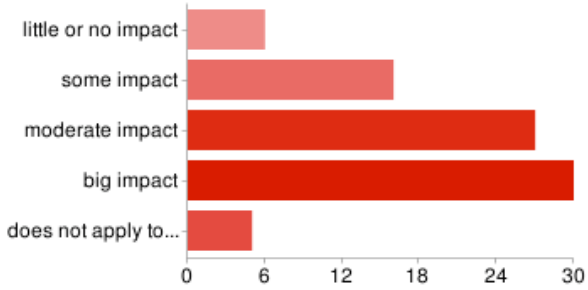

Which tools available to you now do you feel make the biggest impact towards student achievement? - KidPix



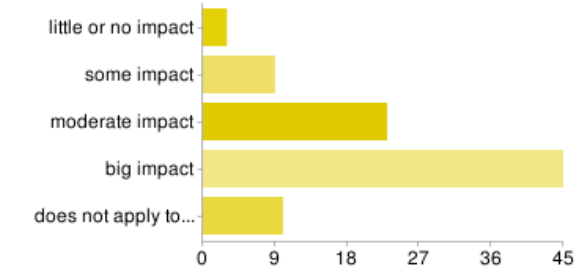

Which tools available to you now do you feel make the biggest impact towards student achievement? - Inspiration/Kidspiration



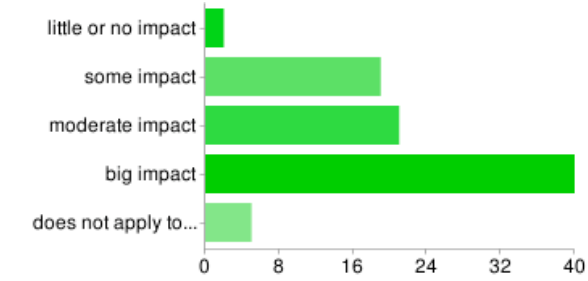

Which tools available to you now do you feel make the biggest impact towards student achievement? - websites for students (Funbrain Arcade, etc)



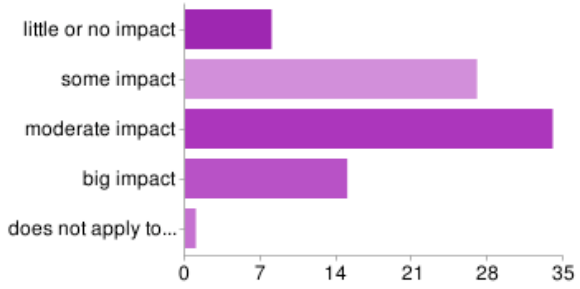

Which tools available to you now do you feel make the biggest impact towards student achievement? - video resources (BrainPop, Discovery Streaming)



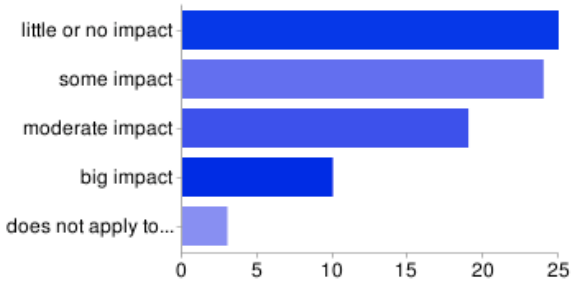

Which tools available to you now do you feel make the biggest impact towards student achievement? - research tools (Nettrekker, SIRS, media center)



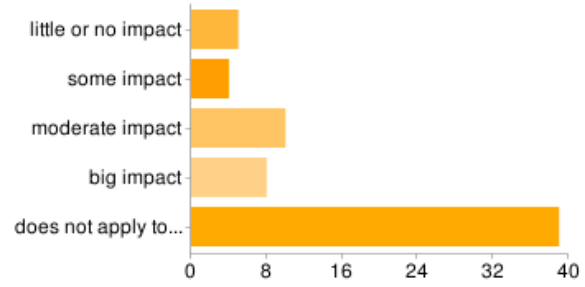
Which tools available to you now do you feel make the biggest impact towards student achievement? - TechTimes and ITRT blogs



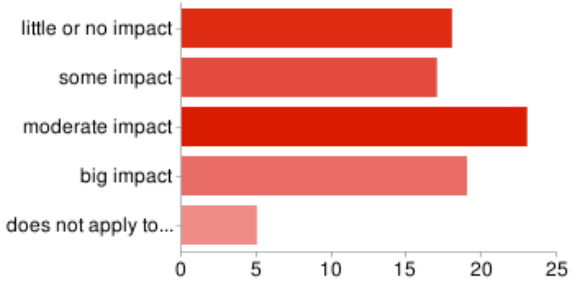

Which tools available to you now do you feel make the biggest impact towards student achievement? - iTunes U



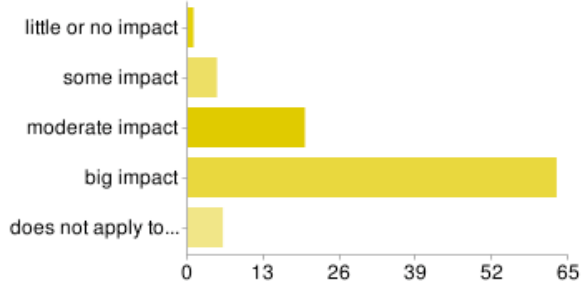

Which tools available to you now do you feel make the biggest impact towards student achievement? - MyAccess (Middle school only)



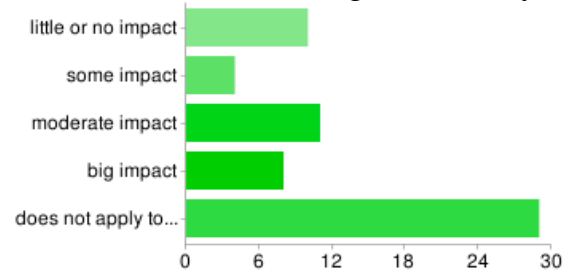

Which tools available to you now do you feel make the biggest impact towards student achievement? - Just5Clicks data warehousing




Which tools available to you now do you feel make the biggest impact towards student achievement? - PowerSchool




Which tools available to you now do you feel make the biggest impact towards student achievement? - TurnItIn (High school only)

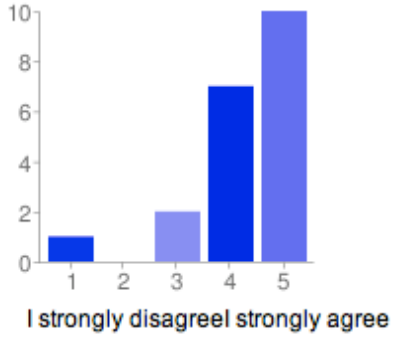


| | |
|---|---|
| Please evaluate the role of ITRT in your building.<br>We need additional ITRTs in my building. 28%<br>We have an appropriate number of ITRTs in my building. 60%<br>We have more than enough ITRT support in my building. 9% | Please evaluate the role of a technology support specialist in your building.<br>We need additional technology support in our building. 28%<br>We have the appropriate level of technology support in our building. 62%<br>We have more than enough technology support in our building. 7% |

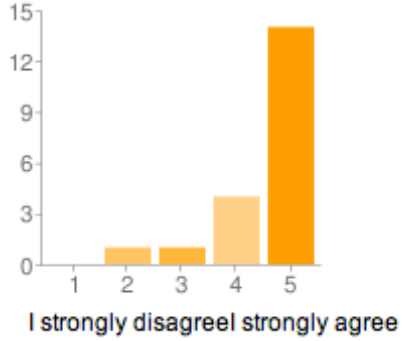
**Appendix 4: Administrator Survey Responses**

For our survey for administrators and central office personnel we received 21 responses.

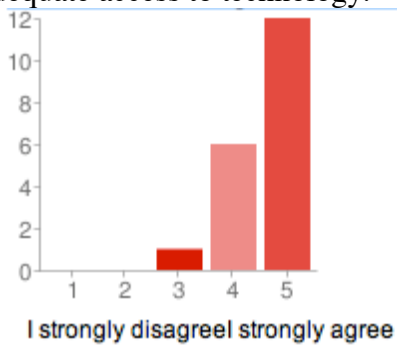
Students have adequate access to technology.



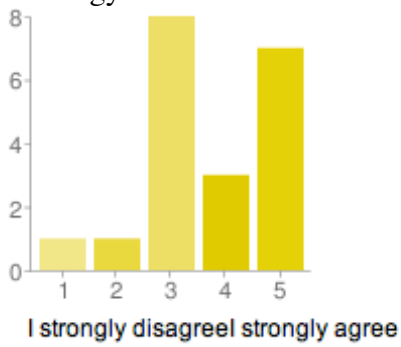

Teachers have adequate access to technology.



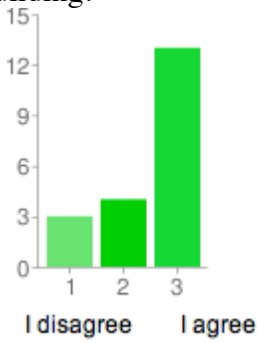

Administrators and guidance counselors have adequate access to technology.



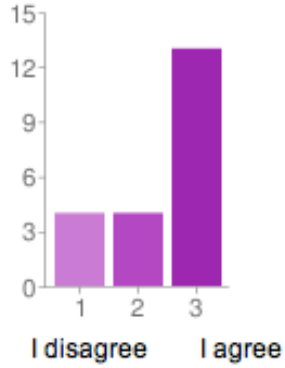

Support staff has adequate access to technology.




The school division has a clear vision for how technology should be used in my school/ building.

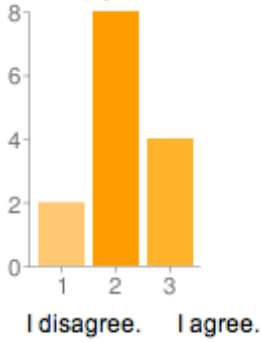



We have adequate bandwidth at our school for network communications.

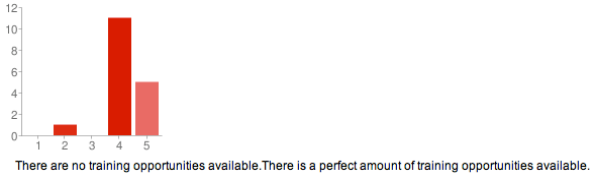


How well does my school do at applying technology towards real-world applications?

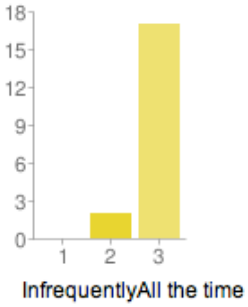
Students in my school have opportunities to use technology in authentic, real-world applications to solve problems.



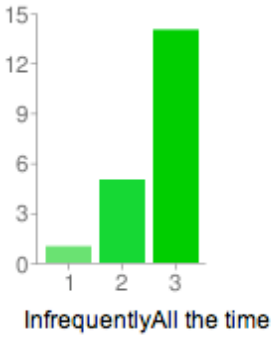

How much training is available to teachers on using technology to engage learners.



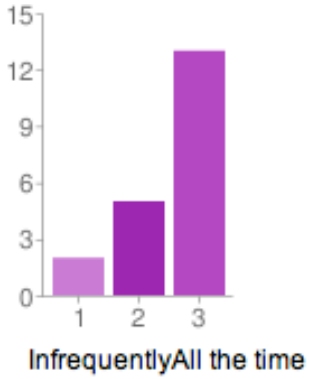

I use e-mail to communicate with staff...



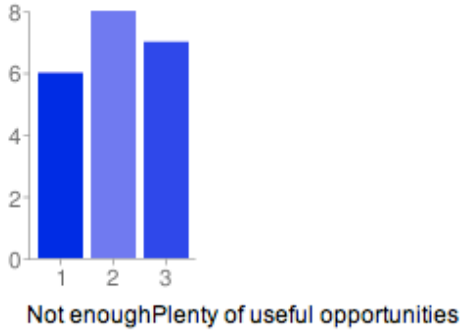

I use iChat (or other instantaneous communication tools) to communicate with staff.



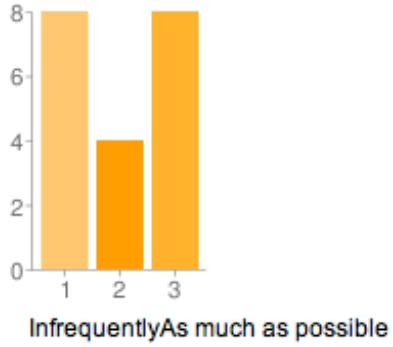

I use e-mail to communicate with parents and members of the community...



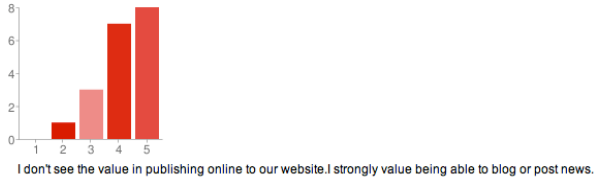
Rate the level of professional development available for administrators offered by my division.



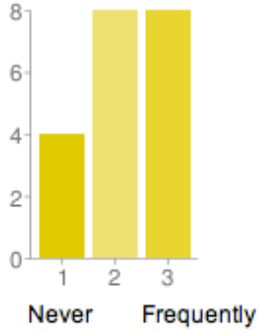

I take advantage of other professional development for using technology outside the division...



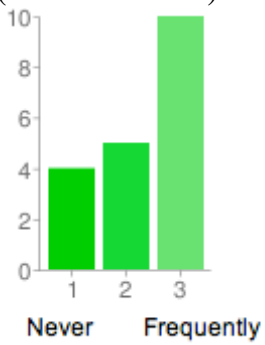

I value the opportunity to share information with parents and the school community through the school website.



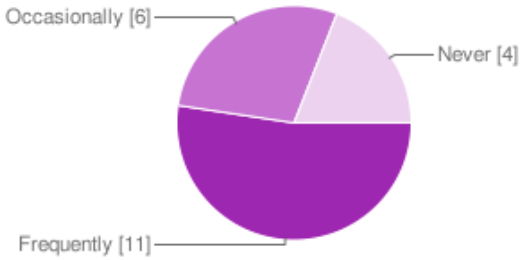

I use social networking tools to communicate and collaborate about school business.



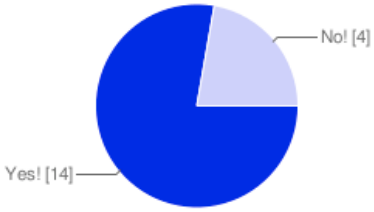

I use social networking tools to communicate (outside of work) about personal business.



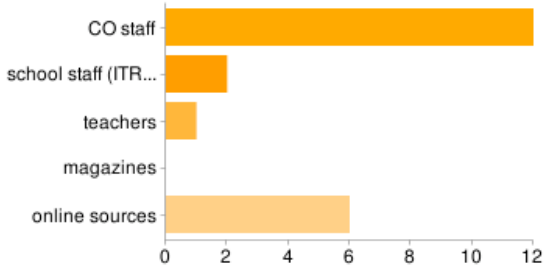

I use Google's collaborative tools.



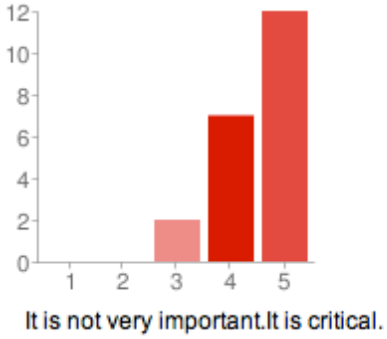
I make it a personal priority to explore new tools that can help me, my teachers, and my students improve our roles in school.




I primarily learn about new tools and software from...



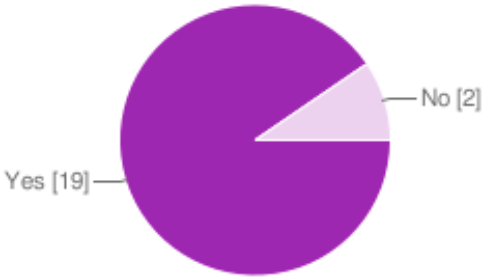

How important is it for administrators to be proficient with the same tools teachers have available in the classroom?




Evaluate the need for an ITRT role in your building.
We need additional ITRTs. 63%
We have the appropriate number of ITRT roles. 31%
There's not a sufficient need for the ITRT role my building. 1%

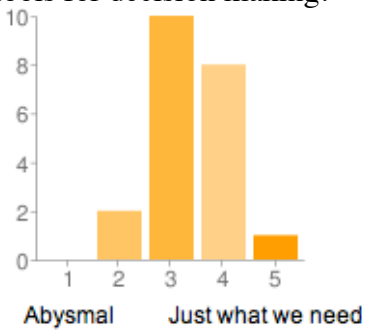
Evaluate the need for a support role in your building.
We need additional support than what we currently have. 59%
The amount of support we have now is adequate. 29%
There's not a sufficient need to have additional technical support positions. 12%

I know where to find data used for good decision making.

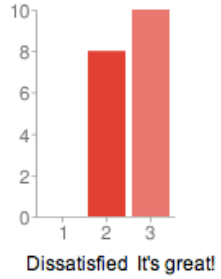


I'd rate my ability to analyze data for data-driven decision making at:

Rate your satisfaction with the current set of tools for decision making.




Rate PowerSchool for scheduling, attendance, student performance, and parental communication.




Rate Just 5 Clicks for testing and data warehousing.

I see positive outcomes from our teacher blogging initiative.

## Appendix 5: Plan Architects

The creation of this plan was organized by Mr. John Hendron, supervisor of instructional technology. The team responsible for creating this plan includes the many administrators, teachers, students, and parents who gave their input. The core team who volunteered their time on this project include (in alphabetical order):

Mrs. Jennifer Bocrie, Information Technology Specialist

Mr. Sean Campbell, Technical Services Specialist

Mrs. Bea Cantor, Instructional Technology Resource Teacher

Mr. Matt Covington, Assistant Principal, Goochland High

Mrs. Deb Cross, library media specialist, Goochland High

Mr. Thomas DeWeerd, Director of Secondary Education & Technology

Mrs. Amanda Henley, Instructional Technology Resource Teacher

Mr. Peter Martin, Coordinator of Technical Services

Mrs. Tina McCay, Title I Parental Involvement Specialist

Ms. Ginni Nichols, technology support technician

Mrs. Tiffany Ray, library media specialist, Goochland Elementary

Mrs. Jamie-Ellen Spessard, gifted resource teacher

Mrs. Adrian Stevens, library media specialist, Byrd Elementary

Mrs. Karren Streagle, division testing coordinator

Mrs. Susan Vaughan, library media specialist, Randolph Elementary

## Appendix 6: Colophon

The 2010-16 technology plan was creating using free tools by Google, including Google Sites from their Apps for Education suite and Google Wave. The plan's Goals, Objectives, and Strategies were completely authored in Google Wave by the folks listed above. This live collaboration environment enabled us to work on different portions of the plan simultaneously, and in addition, allowed us to make edits and collaborate when we were not all meeting in the same physical space. Goochland County Public Schools looks forward to using cutting-edge tools such as Google Wave with students in the near future to foster improved educational experiences.

This document was created in Apple Pages 4.0 and uses the Adobe Myriad Pro font family designed by Robert Slimbach and Carol Twombly and Times Roman by Stanley Morison.

www.glnd.k12.va.us

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