

# Delaware Community School Corporation

## Implementing a 1:1 Learning Environment

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## Goals for the implementation of a 1:1 digital curriculum.

- I. Develop and implement a curriculum focused on scholarship, leadership, and citizenship.
- II. Provide a timeline for 1:1 implementation and digital curriculum integration.
- III. Develop and implement a K-12 vertical technology curriculum which supports the 1:1 digital curriculum.
- IV. Provide policies to guide students, parents, teachers, and administrators in the responsible use of 1:1 technology.
- V. Provide teachers and administrators with timely professional development and technology training to support the 1:1 implementation and digital curriculum.
- VI. Identify professional staff capable of developing and delivering professional development and training to support the 1:1 digital curriculum.
- VII. Develop an evaluation rubric for this plan to provide an avenue for continuing reflection and improvement.

## Research

Over the past few decades, technology integration has been heralded as an essential component of educational reform to develop 21<sup>st</sup> century competencies and the knowledge society. Skills such as organizing information in a table, evaluating information and its reliability, quality of argumentation, and representation and presentation of knowledge while using computerized tools (Spektor-Levy, 2012). Today's school learners and graduates are assessed not only in terms of the knowledge acquired, but also by how effectively they access, evaluate and process that knowledge (Conway, 2011).

Research shows that the use of Chromebooks in the classroom can increase students' motivation as well as their ability to gain understanding, and it can also increase their overall educational achievements (Samson, 2010; Wurst, Smarkola, & Gaffney, 2008). Furthermore, numerous 1:1 programs have reported a decrease in absentee rates due to technology integration, increasing economic competitiveness, and enhancing home-to-school connections (e.g. Lemke & Martine, 2003; Texas Center for Educational Research, 2008). In a 1:1 learning environment, students are more engaged, reflective, active in their learning, and spend more time engaged in collaborative and project-based instruction than non-laptop students (Holcomb, 2009). Higher levels of engagement were observed especially among special needs students, students with disabilities, and at-risk and low-achieving students (Argueta, 2011). The ability of at-risk and low-achieving students to

work in groups increased more than did that of traditional and high-achieving students, and low performing and special-needs students often taught others about technology. This was further shown to increase self-esteem and confidence of students as well as the respect they received from others in the school and the community.

A review of current research on the impact of 1:1 initiatives on student learning reveals widely varied results. The lack of consistent significant impacts on student gains suggests that 1:1 implementations go beyond the technology and extend to the training, support, and strategies utilized by teachers and schools. One cause of most early 1:1 programs' inability to show solid academic growth is that the teachers were taught how to use the computers, but they were not taught how to transform their existing paper-and-pencil curriculum into curriculum that took advantage of the affordances of the networked laptops (Norris, 2012). Lemke and Martin (2004a) found that the most effective professional development is job embedded, student-centered, collegial, ongoing, and metacognitive. Professional development needs to be provided to teachers on a regular basis across a continuum. Educators need professional development that is anchored in the context of teaching and learning and is aligned with curriculum and standards (Crutchfield, 2006).

The presence of one or more key individuals in the schools, who serve as champions of the laptop program and provide strong leadership during implementation of the program, is essential. Consequently, teachers in higher-implementing schools exhibited positive attitudes about the laptop project, expressed an awareness of why immersion was important, appreciated and enjoyed the professional development opportunities, and felt an increase in confidence and in their technology skills (Bebell, 2010). From this leadership there must also be an "explicit set of simple rules" that defines the collective beliefs concerning technology integration methods and learning (Bebell, 2012).

More time using the computer is not always better; indeed, there have been studies that show that more computer use leads to poorer student performance (Stross, 2010). While computers and companion technologies are essential parts of a modern approach to education, they are but one component of what should be a diverse curriculum blended with elements of collaboration, discovery, critical thinking, creativity, and tradition. These pedagogical shifts need to be a transitional blending of technology into the curriculum, and this blending approach is supported by our research as well as the survey data collected from the 366 students involved in our current Chromebook pilot (Appendix A). Teachers should continue to tailor instruction that utilizes their own strengths while developing strategies that capitalize on the modern skill sets of their students. The key is that the

pedagogy driving the students' use of the computer changes from an instructional/direct instruction pedagogy to one where the students are more active in their learning. When computers are used as essential tools in the curriculum, e.g., daily use with active learning pedagogies, that is when computers "move the needle"; that is when students experience increases in achievement (Norris, 2012).

#### References:

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## Timeline of Implementation

1. 2015-16
  - a) 5 Pilot Classrooms-Chrome-Google-Canvas
  - b) 4 Elementary Chrome Labs
  - c) 1 Elementary 5 station Chrome mini-lab
  - d) 1 High School Spanish 5 station Chrome mini-lab
  - e) Develop technology hiring standards for teachers/administrators
2. 2016-17
  - a) Add Full Time Technology/Curriculum Integration Specialist (June 2016)
  - b) Develop vertical technology curriculum to support 1:1
  - c) Expand Pilot Add 11 classrooms and 4 pilot elementary carts for 5<sup>th</sup> grade (Total 24 classrooms)
  - d) Training Sessions for Canvas
  - e) PD focused on Digital Curriculum, management of 21st century classroom, how to teach 21st century skills, study digital curriculum
  - f) Provide all teachers with chromebooks
3. 2017-18
  - a) Add 2nd Full Time Technology/Curriculum Integration Specialist (June 2017)
  - b) DMS goes 1:1 (no take homes) 5th - 8th grade
  - c) DMS's Chrome labs move to DHS (7)
  - d) 5<sup>th</sup> Grade carts move to general elementary
  - e) PD focused on Digital Curriculum
  - f) Technology Education Evening Session for parents at DMS
  - g) Beginning of year Teacher Inservice on Chromebooks and rules
  - h) Education to students at beginning of school year
  - i) Summer Evaluation of CANVAS and decision of LMS
4. 2018-19
  - a) DHS goes 1:1
  - b) DHS Chrome labs move to Elementary
  - c) DMS students take home devices
  - d) 8th Grade Chrome Devices to Elem
  - e) Technology Education Evening Session for parents
  - f) Beginning of year Teacher Inservice on Chromebooks and rules
  - g) Education to students at beginning of school year
5. 2019-20
  - a) 8th and 12th Grade Chrome Devices to Elem
  - b) Continued PD focused on Digital Curriculum
6. 2020-21
  - a) 8th and 12th Grade Chrome Devices to Elem
  - b) Continued PD focused on Digital Curriculum
7. 2021-22

a) 12th Grade Chrome Devices to Elem

# Technology Curriculum

## Delaware Community School Corporation Technology Curriculum, K-12

### ELEMENTARY, Technology Skills Scope and Sequence

Digital Literacy Categories	Skills	K	1	2	3	4	5
<b>Basic Operations</b>	Turn on a computer and login	I	R	M	M	M	M
	Identify parts of a computer (mouse, keyboard, screen, speakers, printer)	I	R	M	M	M	M
	Use a mouse (cursor, single click, double click, move scroll bar up/down and right/left)	I	R	M	M	M	M
	Drag and drop objects	I	R	M	M	M	M
	Use a touchpad or touchscreen	I	R	M	M	M	M
	Plug in headphones		I	R	M	M	M
	Use play, pause, and stop buttons	I	R	M	M	M	M
	Keyboarding: locate and use letter and number keys	I	R	M	M	M	M
	Keyboarding: identify home row		I	R	M	M	M
	Keyboarding: Use left and right hand placement			I	R	R	R
	Keyboarding: Locate and use enter/return, space bar, and backspace		I	R	M	M	M
	Keyboarding: Locate and use shift key, delete, cap locks, and punctuation keys			I	R	M	M
	Use mathematical symbols (e.g. + add, - minus, *multiply, /divide, ^ exponents)				I	R	M
	Keyboarding: Gain proficiency and speed in touch typing (Goals: 2 <sup>nd</sup> – 10 wpm; 3 <sup>rd</sup> – 15 wpm; 4 <sup>th</sup> – 20 wpm; 5 <sup>th</sup> – 25 wpm)		I	R	R	R	R
	Explain and use age-appropriate online tools and resources (e.g. tutorial, assessment, web browser)		I	R	M	M	M
File management – Google Drive and other forms of media storage				I	R	R	
<b>Word Processing</b>	Type words, sentences, paragraphs, and stories		I	R	M	M	M
	Insert words, sentences, paragraphs, and stories			I	R	M	M
	Write, edit, print and save documents			I	R	M	M
	Format text (change font, size, bold, italicize, underline)				I	R	M
	Edit a document using digital resources (e.g. spell checker, grammar, dictionary)				I	R	M
	Insert and size a graphic in a document					I	R
	Use bullets					I	R
	Copy and paste text				I	R	M
	Format a document (e.g. spacing, margins)				I	R	M
<b>I – Introduce      R – Reinforce      M – Mastery (able to teach others)</b>							

Digital Literacy Categories		Skills	K	1	2	3	4	5
	<b>Spreadsheets</b>	Identify and explain terms related to spreadsheets (i.e. cell, column, row, values, labels, chart graph)					I	R
		Enter/edit data in spreadsheets					I	R
		Record, organize, and graph information					I	R
	<b>Multimedia and Presentation Tools</b>	Create, edit and format text on a slide				I	R	M
		Create a series of slides and organize them to present research or convey an idea					I	R
		Copy and paste or import graphics; change their size and position on a slide				I	R	M
		Introduce appropriate technology tools (graphic organizer, audio, visual) for problem-solving					I	R
<b>Digital Citizenship</b>	Explain and demonstrate compliance with classroom, school rules (Acceptable Use Policy) regarding responsible use and care of computers	I	R	M	M	M	M	
	Explain Fair Use Guidelines for the use of copyrighted materials, (e.g. text, images, music, video in student projects) and giving credit to media creators					I	R	
	Password safety			I	R	M	M	
	Internet Safety (T.H.I.N.K.)			I	R	M	M	
	Recognize and describe the potential risks and dangers associated with various forms of online communications (Social media and Digital Footprint)				I	R	M	
<b>Research and Gathering Information</b>	Open a browser window				I	R	M	
	Use desktop shortcuts (apps), google tone, Bookmark, and search bar to open a website	I	R	R	R	R	M	
	Close the Internet		I	R	M	M	M	
	Use the maximize button to make the window larger		I	R	M	M	M	
	Use back arrow to navigate to previous screen			I	R	M	M	
	Use a menu bar/tool bar				I	R	M	
	Refresh Website					I	R	
	Use age appropriate technologies to locate, collect, organize content from media collection for specific purposes, citing sources			I	R	R	M	
	Use effective search strategies for locating and retrieving electronic information				I	R	M	
	Evaluate teacher-selected or self-selected Internet resources in terms of their usefulness for research					I	R	
<b>Communication and Collaboration</b>	Work collaboratively online with other students under teacher supervision (e.g. Google Classroom, Canvas)				I	R	R	
	Create projects that use text and various forms of graphics, audio, and video, (with proper citations) to communicate ideas.				I	R	R	
	Obtain and post assignments (e.g. Google Classroom, Canvas)					I	R	
<b>I – Introduce      R – Reinforce      M – Mastery (able to teach others)</b>								



## SECONDARY, Technology Skills Scope and Sequence

Digital Literacy Categories		Skills	6	7	8	9	10	11	12
<b>Basic Operations</b>	Identify successful troubleshooting strategies for minor hardware and software issues/problems (e.g., “frozen screen”).	I	R	M	M	M	M	M	M
	Independently operate peripheral equipment (e.g., scanner, digital camera, camcorder), if available.	I	R	M	M	M	M	M	M
	Compress and expand large files			I	R	M	M	M	M
	Identify and use a variety of storage media (e.g., CDs, DVDs, flash drives, school servers, and online storage spaces), and provide a rationale for using a certain medium for a specific purpose.	R	M	M	M	M	M	M	M
	Demonstrate automaticity in keyboarding skills by increasing accuracy and speed. (For students with disabilities, demonstrate alternate input techniques as appropriate.)	R	M	M	M	M	M	M	M
	Use calendar to maintain a schedule of activities		I	R	R	M	M	M	M
	Submit documents in a variety of ways (i.e. Dropbox, LMS, attachments, etc.)	R	R	M	M	M	M	M	M
<b>Word Processing</b>	Demonstrate use of <i>intermediate</i> features in word processing application (e.g., tabs, indents, headers and footers, end notes, bullet and numbering, tables).	R	R	M	M	M	M	M	M
	Apply <i>advanced</i> formatting and page layout features when appropriate (e.g., columns, templates, and styles) to improve the appearance of documents and materials.	I	R	M	M	M	M	M	M
	Use appropriate program functions for peer editing				I	R	M		
<b>I - Introduce      R - Reinforce      M - Mastery (able to teach others)</b>									

Digital Literacy Categories		Skills	6	7	8	9	10	11	12
<b>Spreadsheet (Tables/Charts and Graphs)</b>	Use spreadsheets to calculate, graph, organize, and present data in a variety of real-world settings and choose the most appropriate type to represent given data	R	R	M	M	M	M	M	M
	Enter formulas and functions; use the auto-fill feature in a spreadsheet application	I	R	M	M	M	M	M	M
	Use functions of a spreadsheet application (e.g., sort, filter, find)	R	R	M	M	M	M	M	M
	Use various number formats (e.g. scientific notations, percentages, exponents) as appropriate	I	R	M	M	M	M	M	M
	Use <i>advanced</i> formatting features of a spreadsheet application (e.g. reposition columns and rows, add and name worksheets).		I	R	R	M	M	M	M
	Use multiple sheets within a workbook, and create links among worksheets to solve problems.			I	R	R	M	M	M
	Import and export data between spreadsheets and other applications.			I	R	M	M	M	M
<b>Multimedia and Presentation Tools</b>	Create presentations for a variety of audiences and purposes with use of appropriate transitions and animations to add interest.	R	M	M	M	M	M	M	M
	Use a variety of technology tools (e.g., dictionary, thesaurus, grammar checker, calculator/graphing calculator) to maximize the accuracy of work.	R	M	M	M	M	M	M	M
	Make strategic use of digital media to enhance understanding	R	M	M	M	M	M	M	M
	Use painting and drawing tools/ applications to create and edit work	I	R	M	M	M	M	M	M
	Use note-taking skills while viewing online videos and using the play, pause, rewind and stop buttons.	R	M	M	M	M	M	M	M
	Independently use appropriate technology tools (e.g., graphic organizer, audio, visual) to define problems and propose hypotheses.	R	M	M	M	M	M	M	M
<b>I – Introduce      R – Reinforce      M – Mastery (able to teach others)</b>									

Digital Literacy Categories		Skills	6	7	8	9	10	11	12
<b>Digital Citizenship</b>	Comply with the district's Acceptable Use Policy related to ethical use, cyberbullying, privacy, plagiarism, spam, viruses, hacking, and file sharing.	R	M	M	M	M	M	M	M
	Explain Fair Use guidelines for using copyrighted materials and possible consequences (e.g., images, music, video, text) in school projects.	R	M	M	M	M	M	M	M
	Analyze and explain how media and technology can be used to distort, exaggerate, and misrepresent information.	R	M	M	M	M	M	M	M
	Give examples of hardware and applications that enable people with disabilities to use technology.				I	R	M	M	M
	Explain the potential risks associated with the use of networked digital environments (e.g., internet, mobile phones, wireless, LANs) and sharing personal information.	R	M	M	M	M	M	M	M
<b>Research (Gathering and Using Information)</b>	Identify probable types and locations of Web sites by examining their domain names (e.g., edu, com, org, gov, au).	I	R	M	M	M	M	M	M
	Use effective search strategies for locating and retrieving electronic information (e.g., using syntax and Boolean logic operators).	R	M	M	M	M	M	M	M
	Use search engines and online directories. Explain the differences among various search engines and how they rank results.	R	M	M	M	M	M	M	M
	Use appropriate academic language in online learning environments (e.g., post, thread, intranet, discussion forum, drop box, account, and password).	R	R	M	M	M	M	M	M
	Explain how technology can support communication and collaboration, personal and professional productivity, and lifelong learning.	R	M	M	M	M	M	M	M
	Write correct in-text citations and reference lists for text and images gathered from electronic sources.	I	R	R	M	M	M	M	M
	Use Web browsing to access information (e.g., enter a URL, access links, create bookmarks/favorites, print Web pages).	R	M	M	M	M	M	M	M
	Use and modify spreadsheets to analyze data and propose solutions.	I	R	M	M	M	M	M	M
	Use and modify databases to analyze data and propose solutions.					I	R	M	M
	Develop and use guidelines to evaluate the content, organization, design, use of citations, and presentation of technologically enhanced projects.				I	R	M	M	M
	Identify and properly use academic and scholarly resources for research purposes.						I	R	M
<b>I – Introduce      R – Reinforce      M – Mastery (able to teach others)</b>									

Digital Literacy Categories	Skills	6	7	8	9	10	11	12
Communication and Collaboration	Use a variety of media to present information for specific purposes (e.g., reports, research papers, presentations, newsletters, Web sites, podcasts, blogs), citing sources.	R	M	M	M	M	M	M
	Demonstrate how the use of various techniques and effect (e.g., editing, music, color, rhetorical devices) can be used to convey meaning in media.		I	R	M	M	M	M
	Use a variety of district approved Web 2.0 tools (e.g., e- mail discussion groups, blogs, etc.) to collaborate and communicate with peers, experts, and other audiences using appropriate academic language.	R	M	M	M	M	M	M
	Use teacher developed guidelines to evaluate multimedia presentations for organization, content, design, presentation and appropriateness of citations.	R	M	M	M	M	M	M
	Plan and implement a collaborative project with students in other classrooms and schools using telecommunications tools (e.g., e-mail, discussion forums, groupware, interactive Web sites, video- conferencing).		I	R	R	M	M	M
<b>I – Introduce      R – Reinforce      M – Mastery (able to teach others)</b>								

#### References

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<https://sites.google.com/a/lps.k12.co.us/technology-homepage/technology-skills-per-grade-level>

## Policies

Delaware Community School Corporation has developed policies for staff and students related to a 1:1 implementation and technology. Please find the following documents in the Appendices:

- 1:1 Handbook
- Responsible Use Policy
- Employee Social Media Guidelines

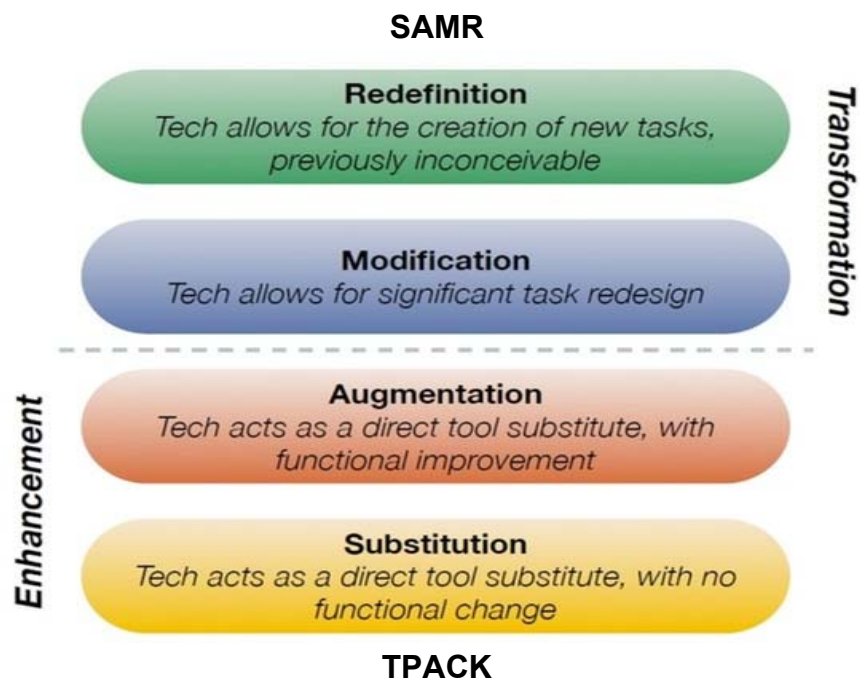
## Professional Development and Training

### Staffing

Delaware Community Schools has committed the following personnel for the development and implementation of the 1:1 integration plan:

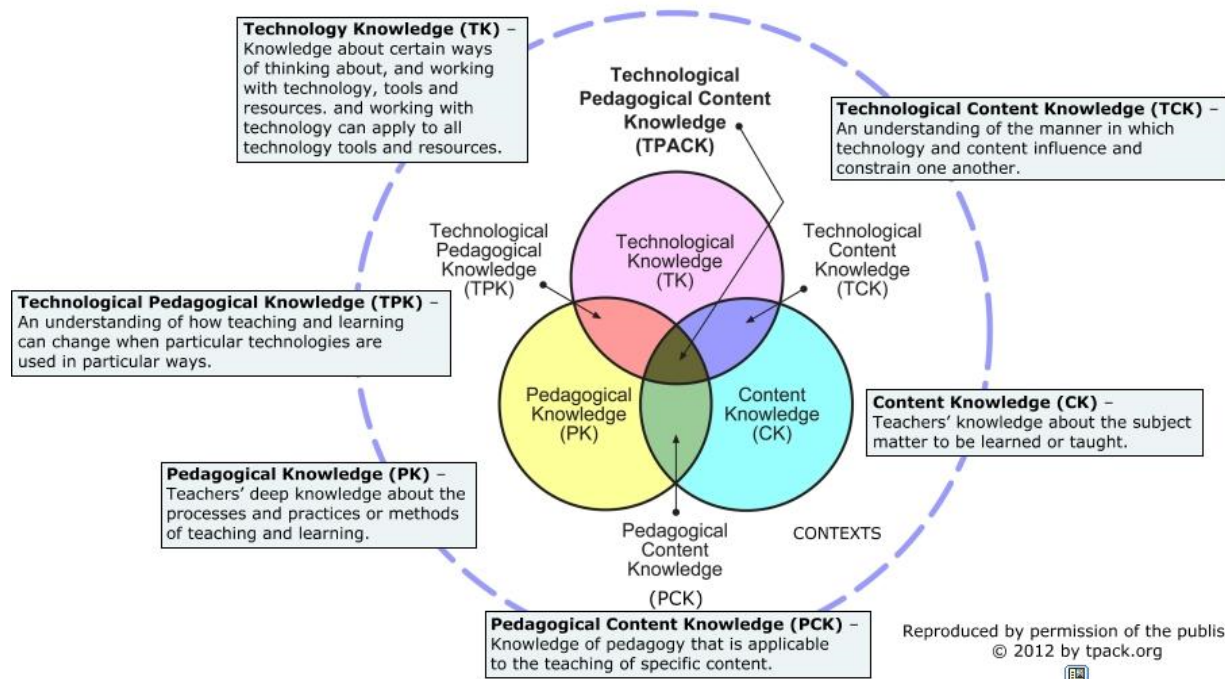
- 1 Professional Development Coordinator;
- 1 Corporation Technology Trainer/Data Coordinator; and
- 6 Building Level Teacher/Tech Trainers.

### Teaching and Learning Models



## Technological Pedagogical Content Knowledge (TPACK) -

Underlying truly meaningful and deeply skilled teaching with technology.



### 4 C's

**WHAT ARE 21ST CENTURY SKILLS? THESE 4 C'S:**

<b>C</b> COMMUNICATION	<b>C</b> COLLABORATION	<b>C</b> CRITICAL THINKING	<b>C</b> CREATIVITY
Sharing thoughts, questions, ideas & solutions	Working together to reach a goal. Putting talent, expertise, and smarts to work	Looking at problems in a new way and linking learning across subjects & disciplines	Trying new approaches to get things done equals innovation & invention

<https://www.thinglink.com/scene/716099721269084162>

Professional Development Strategies

DelCom is committed to providing a variety of learning opportunities for our teachers.

These opportunities will include:

- One-on-One training & PD inside and outside the classroom
- eLearning consisting of online classes, instructional videos, and web collaborations
- Small group and building level training & PD tailored to the participants
- Opportunities provided by State and Local entities for Pedagogical and Content Training
- Eagles' Summer Learning Seminar is DelCom educators sharing their knowledge with each other in a more relaxed summer environment

These opportunities will be led by our:

- Teacher Tech/Trainers;
- Technology Trainer;
- Pilot Teachers;
- PD Coordinator;
- Technicians; and
- Classroom teachers.

## Plan's Annual Evaluation Survey and Rubric

Four groups will be surveyed to evaluate the effectiveness of the plan: teachers, principals, corporation administration, and the technology department. The measures were adapted from the ISTE Lead and Transform Diagnostic Tool and will continue to evolve with our implementation process.

The surveys can be found in Appendix F.