



ACADEMIC
TECHNOLOGY
STRATEGIC
PLAN



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A. EXECUTIVE SUMMARY

Academic outcomes benefit from a thoughtful partnership with technology. Technology can be a powerful enabler of learning. The ways that technology can empower learning continue to expand and reveal themselves. It is vital for any educational organization to stay on top of those developments and to develop and maintain a strategic plan to make the best use of technology to fulfill its core purpose. This document is intended to do exactly that: to illustrate a vision for how technology can be used to achieve the Denver Plan 2020 vision that Every Child Succeeds, and our path for realizing that outcome.



**IF YOU HAVE QUESTIONS OR WOULD LIKE
TO LEARN MORE, PLEASE EMAIL**

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B. CONTEXT: THE DENVER PLAN 2020

The Denver Plan 2020 (dpsk12.org/denverplan) is Denver Public Schools' five-year strategic plan. With the vision of Every Child Succeeds, DPS has committed to five specific goals designed to close academic achievement gaps and prepare all students for success in college and careers.



GOAL #1: GREAT SCHOOLS IN EVERY NEIGHBORHOOD

By 2020, 80% of DPS students will attend a high-performing school, measured by region, using the district's school performance framework.



GOAL #2: A FOUNDATION FOR SUCCESS IN SCHOOL

By 2020, 80% of DPS third-graders will be at or above grade level in reading and writing.



GOAL #3: READY FOR COLLEGE & CAREER

By 2020, the four-year graduation rate for students who start with DPS in ninth grade will increase to 90%. We will also double the number of students who graduate college and career-ready, as measured by the increasing rigor or the state standard.



GOAL #4: SUPPORT FOR THE WHOLE CHILD

By 2015, a task force, including DPS staff, community partners, and city agencies providing services to DPS students, will recommend to the Board of Education a plan to measure this goal and track progress.



GOAL #5: CLOSE THE OPPORTUNITY GAP

By 2020, the graduation rate for African American and Latino students will increase by 25 percentage points. Reading and writing proficiency for third-grade African American and Latino students will increase by 25 percentage points.

In service of the five Denver Plan 2020 goals, DPS has identified key strategies as follows:

Leadership:

- Attract, develop, and retain strong, values-based leaders across DPS.
- Advance distributed leadership structures in schools through developing and empowering teacher leaders.
- Develop strong pipelines for leadership, including internal cultivation, school-leader preparation programs, and focused mentorship.
- Ensure school leaders are prepared, supported, and held accountable for the success of their students and for meeting the unique needs of their school communities.

Teaching:

- Significantly increase the quality and rigor of classroom instruction through a deep implementation of grade-level content standards and best practice instructional strategies, targeting the needs of English-language learners.
- Improve support systems, including feedback and coaching loops, curriculum and professional development, and refine progress monitoring tools and assessments.
- Enhance our efforts to recruit, develop, and retain effective teachers for every DPS school with incentives and supports for teaching in our highest-needs schools.
- Implement intentional strategies to focus on culturally responsive education in every classroom.

Flexibility:

- Empower schools through flexible, school-based decision-making, including the use of resources.
- Expand high-quality school choices in all communities through differentiated supports for existing schools, new school strategies, turnaround efforts, and strong accountability systems.



- Provide schools with opportunities to innovate and create environments that best meet the academic and social/emotional needs of their students, including expansion of personalized learning environments, programs, and focused mentorship.

Invest Early:

- Prioritize resources in the early grades (preschool-third grade) to set up our youngest students for later success.
- Partner with community organizations to expand high-quality supports and services for families with young children to build the foundation for academic success.

Culture:

- Live, celebrate, and hold ourselves accountable to our Shared Core Values.
- Build positive, empowering cultures at all of our schools that embrace families and communities.
- Promote a culture of service to schools across DPS, support functions, and DPS partners.



C. ACADEMIC TECHNOLOGY VISION

Technology is a powerful tool for realizing goals in the Denver Plan 2020 as an enabler of our Denver Plan strategies and as a critical component of our vision for the DPS graduate and the DPS classroom.

Vision of a DPS Graduate

We believe that all students, from the very first day they walk into a DPS early childhood learning center and into our care, can and will achieve at the highest levels. Regardless of where a student lives, his or her native language, race, ethnicity, learning needs, or areas of strength and growth, every student will proudly cross the DPS graduation stage **prepared to succeed in a globally connected, knowledge-based economy**. Learn more at: dpsk12.info/atsp1

Vision of a DPS Classroom

Technology plays an essential role in establishing a **joyful, rigorous, and personalized classroom**. It does so by breaking down the walls of the classroom and creating learning opportunities that are in online spaces just as surely as they are in physical spaces. It allows for specific curriculum and resources to be delivered when a student needs them. It also lets students demonstrate their learning in different ways, such as creating collaborative documents or multimedia presentations. Access to technology is an accelerant for student outcomes and we want to ensure that all classrooms have equitable access. Learn more at: dpsk12.info/atsp2

Students who learn to use technology to create, communicate, and collaborate will be best prepared for the marketplace they will enter and for the world as a whole. Students who learn to use technology to take ownership of their own learning will become lifelong learners capable of adapting to changes in the world.

By developing systems that support schools and classrooms in their use of technology, we will empower teachers to thoughtfully use various tools to help students learn. Students will be provided with rigorous digital learning experiences, which will expand both their understanding of content areas and their capacity to use technology as a way to access information, process knowledge, and express their ideas.

DPS holds the following beliefs about technology:

We believe...

- **Technology is a positive, enabling force** for parent engagement, student engagement, educator effectiveness, operational efficiency, student safety, and student achievement when thoughtfully implemented.
- **Students should graduate from DPS digitally literate** and able to use a variety of technologies found in collegiate and work environments.
- The **trajectory of technology innovation will continue to create opportunities** for students, educators, and school support teams.

Therefore...

- The district has a **responsibility to leverage technology innovations** for the benefit of our students, families, and staff and to mitigate the effect of the digital divide that exists in our society.
- **All students should have consistent access** to intentionally implemented technology throughout their educational career.
- Technology must be **implemented holistically**, including the appropriate support systems and professional development.

In accordance with these beliefs, DPS has crafted a vision for Academic Technology in DPS.

The vision was built with input from students, teachers, principals and central office team members. The vision is illustrated in this video (vimeo.com/97279994).



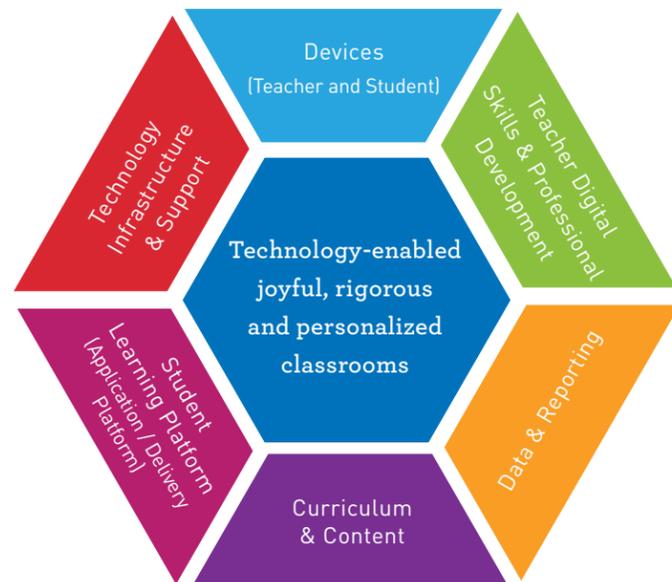


D. REALIZING THE VISION

Realizing the Academic Technology Vision for DPS as a means of achieving our Denver Plan 2020 goals and strategies necessitates bringing six core elements together to create **technology-enabled joyful, rigorous, and personalized classrooms** in DPS.

The elements include:

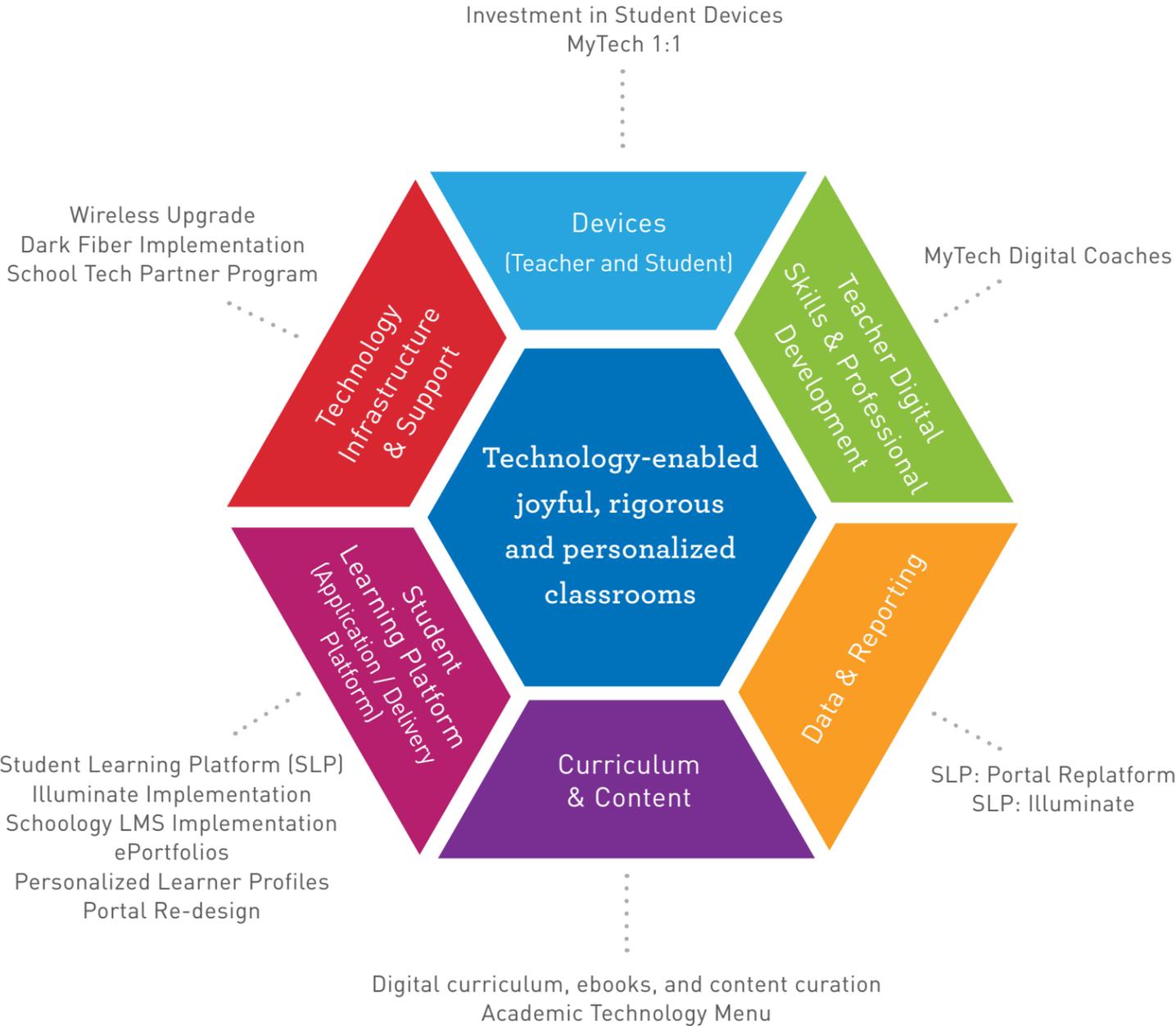
- Devices (teacher and student)
- Digital skills and professional development
- Data and reporting
- Curriculum and content
- Student Learning Platform (applications, software delivery platforms)
- Technology infrastructure and support



DPS is committed to realizing this vision, and we have launched an intentional, targeted set of initiatives to do so. The initiatives include:

1. Student Learning Platform (SLP)
 - a. Illuminate Implementation (Assessment and Reporting Platform)
 - b. Schoology Learning Management System (LMS) Implementation
 - c. ePortfolios
 - d. Personalized Learner Profiles
 - e. Portal Re-design
2. Devices
 - a. Investment in Student Devices
 - b. MyTech 1:1
 - c. MyTech Digital Coaching
3. High-Quality Digital Content: digital curriculum, content, and eBooks curation
4. Professional Learning that builds digital literacy capacity in teachers and leaders
5. Technology Infrastructure and Support
 - a. Network Readiness - Dark Fiber Implementation
 - b. Network Readiness - Wireless Network Upgrade
 - c. Support - School Tech Partners
6. Academic Technology Menu

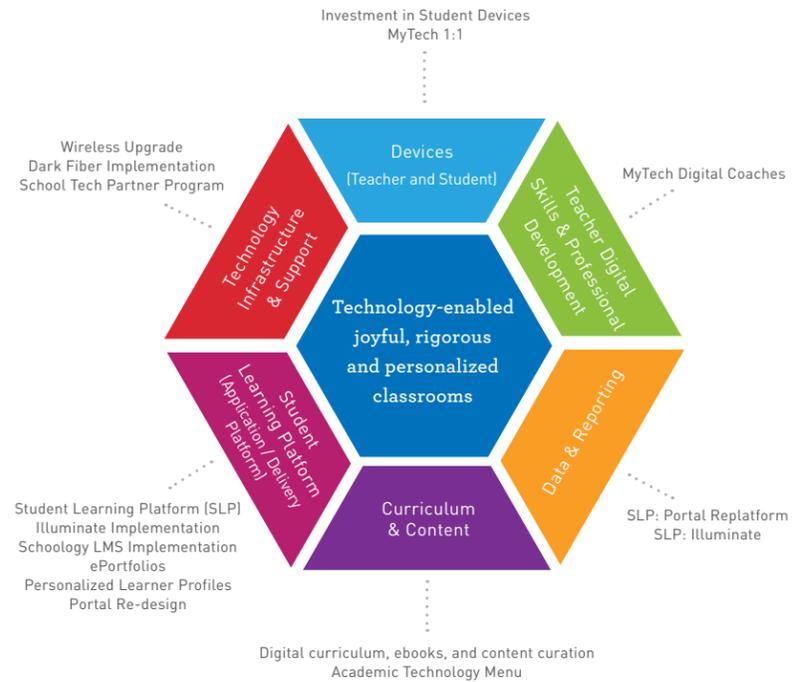
These initiatives align to achieving the Denver Plan 2020 goals as shown here.



Denver Plan 2020 Goals	Specific Aligned Technology Initiative
<p>#1 GREAT SCHOOLS IN EVERY NEIGHBORHOOD*</p> <p>*Includes support for the strategies of Flexibility and Teaching</p>	<p>2. Devices</p> <p>2a. Investment in Student Devices</p> <p>2b. MyTech 1:1</p> <p>2c. MyTech Digital Coaching</p> <p>4. Professional Learning - Digital Capacity for Teachers & Leaders</p> <p>5. Technology Infrastructure and Support</p> <p>5a. Network Readiness - Dark Fiber Implementation</p> <p>5b. Network Readiness - Wireless Network Upgrade</p> <p>5c. Support - Central Pool of School Tech Partners</p> <p>6. Academic Technology Menu</p>
<p>#2 FOUNDATION FOR SUCCESS IN SCHOOL</p>	<p>1. Student Learning Platform (SLP)</p> <p>1a. Illuminate Implementation</p> <p>1b. Schoology LMS Implementation</p> <p>1c. ePortfolios</p> <p>1d. Personalized Learner Profiles</p> <p>2. Student Devices</p> <p>3. High Quality Digital Content - Curricula, Library System, eBooks</p>
<p>#3 READY FOR COLLEGE AND CAREER</p>	<p>1. Student Learning Platform (SLP)</p> <p>1a. Illuminate Implementation</p> <p>1b. Schoology LMS Implementation</p> <p>1c. ePortfolios</p> <p>1d. Personalized Learner Profiles</p> <p>1e. Portal Redesign (UX Improvement/Integration)</p> <p>2. Student Devices</p> <p>2a. MyTech 1:1</p> <p>3. High Quality Digital Content - Curricula, Library System, eBooks</p>
<p>#4 SUPPORT FOR THE WHOLE CHILD</p>	<p>1. Student Learning Platform (SLP)</p> <p>1c. ePortfolios</p> <p>1d. Personalized Learner Profiles</p> <p>1e. Portal Redesign (UX Improvement/Integration)</p> <p>2. Student Devices</p> <p>3. High Quality Digital Content - Curricula, Library System, eBooks</p> <p>6. Academic Technology Menu</p>
<p>#5 CLOSE THE OPPORTUNITY GAP</p>	<p>1. Student Learning Platform (SLP)</p> <p>1b. Schoology LMS Implementation</p> <p>1c. ePortfolios</p> <p>1d. Personalized Learner Profiles</p> <p>2. Student Devices</p> <p>2a. MyTech 1:1</p> <p>3. High Quality Digital Content - Curricula, Library System, eBooks</p>

For a more in-depth look at each initiative, please see section G. Appendix.

E. IMPACT



With thoughtful and intentional implementation of these technology initiatives, we will:

- Enable joyful, rigorous, personalized classrooms throughout Denver Public Schools.
- Enable an increased number of schools attaining 1:1 student-to-device ratio.
- Build whole-school proof points of Take Home 1:1 Implementation success and gather learning for other schools.
- Expand capacity of DPS teachers to deliver digitally enabled lessons through coaching and support.
- Increase pace of adoption for Colorado Academic Standards-aligned digital resources.
- Build our eBook/digital content library.
- Increase student engagement, parent access to information, and access to state-of-the-art integrated learning tools through a comprehensive Student Learning Platform.
- Increase teacher engagement, access to information, and state-of-the-art integrated instructional tools through a Learning Suite.
- Leverage the improved Portal tools to ensure there is a streamlined user experience for students, parents, teachers, and leaders to access the data and content they need.
- Provide robust technology infrastructure to support increasing bandwidth needs, mobility, and student data privacy.
- Begin closing the digital divide that exists for our students in poverty.
- Positively and measurably impact student readiness for college and career.

F. CALL TO ACTION:

The successful use of technology in the service of learning will rely on people across the district. Every one of us has a role to play in realizing the vision of Academic Technology in DPS. There are limitless possibilities for how you can help.

IF YOU ARE A...

WE ASK THAT YOU...



DPS Student

- Gain critical skills in using technology to research, collaborate, and create.
- Demand access to technology and high-quality digital learning experiences to prepare you for college and career.



DPS Family

- Leverage the technology tools provided by DPS to engage in your student's learning and academic growth.
- Demand access to technology and high-quality digital learning experiences to prepare your student for college and career.



DPS Educator

- Gain critical skills in leveraging technology to engage your students and deliver rigorous, personalized lessons.
- Share your technology successes and learning opportunities with other teachers.



DPS School Support Team Member

- Deliver the tools, data, content, support, and professional development that schools need to effectively leverage technology for student success.
- Engage in supporting delivery of the technology initiatives highlighted in this plan.



Community Member

- Support DPS requests for technology funding, highlight our successes, share ideas for continuing to leverage technology for parent engagement, student engagement and achievement, educator effectiveness, operational efficiency, and student safety.



G. APPENDIX

IMPLEMENTATION ROADMAP:

Our journey toward realizing our vision will take several years, and benefits will be realized with every step along our path. Our timeline and major milestones for implementation can be found at: dpsk12.info/atasp3

Academic Technology Strategic Plan Initiative Implementation Timeline	SY 16/17				SY 17/18				SY 18/19							
	July	Sept	Oct	Dec	Jan	Mar	Apr	Jun	July	Sept	Oct	Dec	Jan	Mar	Apr	Jun
Student Learning Platform	[Timeline bar]															
Illuminate Implementation	[Timeline bar]															
Plan (complete)	[Timeline bar]															
Implementation	[Timeline bar]															
Schooling Learning Management System	[Timeline bar]															
Initiate (complete)	[Timeline bar]															
Plan	[Timeline bar]															
Design and Implement	[Timeline bar]															
ePortfolios	[Timeline bar]															
Personalized Learner Profiles	[Timeline bar]															
Portal Redesign	[Timeline bar]															
Initiate (complete)	[Timeline bar]															
Plan	[Timeline bar]															
Implement	[Timeline bar]															
Student Devices	[Timeline bar]															
MyTech 1:1	[Timeline bar]															
Initiate	[Timeline bar]															
Plan	[Timeline bar]															
Design and Implement	[Timeline bar]															
High Quality Digital Content	[Timeline bar]															
Digital Curricula	[Timeline bar]															
Library System	[Timeline bar]															
eBooks	[Timeline bar]															
Teacher Digital Skills and Professional Development	[Timeline bar]															
Professional Learning that Builds Digital Literacy	[Timeline bar]															
MyTech Digital Coaches	[Timeline bar]															
Initiate	[Timeline bar]															
Plan	[Timeline bar]															
Design & Implement	[Timeline bar]															
Technology and Infrastructure Support	[Timeline bar]															
Network Readiness - Dark Fiber Implementation	[Timeline bar]															
Initiate project	[Timeline bar]															
Plan	[Timeline bar]															
Design and Implement	[Timeline bar]															
Network Readiness - Wireless Network Upgrade	[Timeline bar]															
Initiate project	[Timeline bar]															
Plan	[Timeline bar]															
Design and Implement	[Timeline bar]															
Support	[Timeline bar]															
Support - School Tech Partners	[Timeline bar]															
Initiate (complete)	[Timeline bar]															
Plan (complete)	[Timeline bar]															
Design and Implement	[Timeline bar]															
Expand as appropriate	[Timeline bar]															
Academic Technology Menu	[Timeline bar]															

INITIATIVE DETAIL:

1. Student Learning Platform (SLP)

2020 GOALS SUPPORTED

- #2 Foundations for Success in School
- #3 Ready for College and Career
- #4 Support for the Whole Child
- #5 Close the Opportunity Gap

available tools that can support schools and classrooms no matter their flexibility decisions. No matter what schools are opting into or out of, they can use these tools to manage instruction with students with content agnostic tools. Bond funds will be the largest source of funding for this work.

When?

Work is currently underway for the Student Learning Platform, but the work largely culminates in the 2018-19 school year.

Why?

Students now have access to more systems and tools than ever before. That makes life that much more complicated and learning more difficult to navigate. DPS needs a way to streamline the experience for students so they have what they need at their fingertips anytime, anywhere. The DPS Student Learning Platform encompasses all of the technology tools and systems required to provide students the ideal learning experience. It includes all of the systems that educators and students use for instructional planning and delivery, classroom management, data-driven decisions, and foundational functions for personalized learning.

What?

The project is a “parent” project that will ultimately result in the creation of a first-stop-shop for students and teachers to access the applications and data they need. Projects that are in scope as a part of this parent project are:

- a. Illuminate Implementation (Assessment and Reporting Platform)
- b. Learning Management System Implementation
- c. ePortfolios
- d. Personalized Learning Profiles
- e. Portal Redesign (UX Improvement/Integration)

How?

Several projects will come together over the next couple of years to round out the Student Learning Platform. A key step will be to redesign the Academic Portals to integrate the data and application access to the suite of systems that make up our Student Learning Platform. It’s assumed that these will be universally

1a. Illuminate Implementation (Assessment and Reporting Platform)

2020 GOALS SUPPORTED

- #2 Foundations for Success in School
- #3 Ready for College and Career

Why?

DPS currently has Schoolnet implemented districtwide as an assessment and reporting platform that helps teachers manage assessments (interim, summative and formative), conduct data analysis, and access the district curriculum. Challenges with Schoolnet have led the district to recommend the transition from that tool to a more user-friendly tool in Illuminate. Beginning in 2016-17, Illuminate became available as an opt-in assessment option for schools, and in 2017-18 it will be available to all schools and teachers to access classroom-level reports and item banks.

What?

The goal of this project is to improve overall use of the district’s assessment platform and empower schools and teachers to develop instructionally relevant interim and formative assessments. The product was initially available to teachers and leaders who “opted-in” to the Illuminate assessment platform in 2016-17. The tool will also contain over 20,000 Common Core-aligned test items. By 2017-18, the platform will be available to all schools and teachers for reporting and item bank purposes.

How?

The Program Management Office, along with partners in DoTS, the Portal Team, and Assessment, Research and Evaluation, are collaborating to integrate data, set up access, develop reports, train, and support end users. The project is funded in part by the 2012 bond, but largely by repurposing the funding that was once used for Schoolnet.

When?

The project began as a pilot in 2015-16, was made available as an opt-in option in 2016-17, and will complete with a districtwide roll-out in the fall of 2017.

1b. Schoology Learning Management System (LMS) Implementation

2020 GOALS SUPPORTED

- #2 Foundations for Success in School
- #3 Ready for College and Career
- #5 Close the Opportunity Gap

Why?

Immediately, DPS needs a replacement for Schoolnet to manage our district curricular content and teacher professional development courses. More importantly, DPS teachers are pushing the envelope in terms of course management, leveraging learning management systems, and we want to enhance their ability to engage students using tools like these. Via a competitive RFP process, DPS selected Schoology LMS to replace the curriculum management functions that were previously served by Schoolnet and provide a space to manage professional learning for teachers. The latter phase of the project will support teachers who want to engage more personally with their students by enabling online collaboration features, online assignments and assessments, ePortfolios, and more. This will be a foundational application as we begin to scale personalized learning at DPS.

What?

The goal of this project will be to provide teachers and students a place to access the materials and professional learning resources they need to enhance their instructional experiences. Phase 1: Buildout of DPS teacher-facing curriculum into the LMS so that all DPS teachers have access to the DPS content and teachers have access to professional learning courses. This phase will include comprehensive curriculum and

resources to learn Schoology and we will provide one-off support for early adopter schools or classrooms who would like to build out their own content in the LMS and begin using interactive student-facing features. Phase 2: Build out student-facing courses and support more schools looking to implement personalized learning. This includes introducing the ePortfolio and Personalized Learning Plan features.

How?

The Program Management Office will lead the work with the Access, Competency and Engagement Department, DoTS, and Curriculum and Instruction to set up the application, load the content, and develop training plans to deliver to end-users. The work will largely be funded by the 2012 and 2016 bonds.

When?

Teachers and educators will have access beginning in the spring of 2017, and will be available for use with students in classrooms beginning in the 2017-18 school year.

1c. ePortfolios

2020 GOALS SUPPORTED

- #2 Foundations for Success in School
- #3 Ready for College and Career
- #4 Support for the Whole Child
- #5 Close the Opportunity Gap

Why?

Test results and grades no longer suffice to demonstrate the work, accomplishments, and the mastery of standards and skills. It is crucial that students are able to demonstrate their mastery through a body of evidence developed over time. ePortfolios allow students (and teachers) to do that from an early age and take that content with them wherever they go in DPS. ePortfolio functionality can also aid educators as they calibrate around what mastery means throughout the district.

What?

The goal and scope of the project are still being determined at this time to ensure alignment with the district transition to Competency-based Learning.

How?

This project will be implemented during the end phase of the Learning Management System project, as it is a lever for personalized learning and student agency.

When?

The timing is not final, but planning will begin in January 2017, and implementation will likely begin in the latter half of the 2017-18 school year.

1d. Personalized Learner Profiles

2020 GOALS SUPPORTED

- #2 Foundations for Success in School
- #3 Ready for College and Career
- #4 Support for the Whole Child
- #5 Close the Opportunity Gap

Why?

Learner profiles are one of the key drivers of personalized learning. By ensuring that each learner knows what they need in order to be successful, he/she can make better choices in the classroom and have greater agency over the learning. For the educators, this also ensures that these needs are being addressed from a technological, pedagogical, and curriculum standpoint.

What?

Learner profiles represent a snapshot of an individual learner's strengths, needs, interests, and constraints. It is typically represented in a visual way so that both learners and educators can access the information and continue to make intentional choices for the continued progress of the learner. They help teachers understand their students to better address their specific needs.

How?

Many Learning Management Systems have incorporated aspects of learner profiles into their role-based systems. We hope to extend this functionality and continue to build in data systems to better understand the needs of our learners.

When?

Learner profiles are being piloted in many of the Imaginarium's Personalized Learning cohort schools, as well as in individual classrooms around the district.

As personalized learning is a priority in the Denver Plan 2020, the full rollout of Learner Profiles will be a key component of achieving the goals of that plan by 2020.

1e. Portal Redesign (UX Improvement/Integration)

2020 GOALS SUPPORTED

- #3 Ready for College and Career
- #4 Support for the Whole Child

Why?

In an effort to integrate the new platforms, we are introducing and to enhance the overall user experience for students, parents, teachers, and school leaders, we need a significant upgrade to our portal platforms. The portals are built on antiquated technology that does not allow the flexibility we need to provide a seamless user experience and to integrate the platforms that are a part of daily routines at DPS. The Portal Team and DoTS are collaborating to identify that new technology and develop a migration/rebuild plan to best deliver access to data, digital resources, and key applications.

What?

The goal of this work is to develop a role-based universal portal that will provide students, parents, teachers, and school leaders a first-stop to access their data and key applications that are relevant to them. The user experience needs to be simplified and enhanced to support flexibilities and limit the number of applications they have to manage on their own. This will include selecting a new platform or content manager where all of the academic portals can be housed and ensure that ongoing enhancements can be made without significant incremental development efforts.

How?

The PMO, DoTS, and the Portal Team are collaborating to identify the best solution. The implementation specifics will be dependent on the technology solution. Funding for this work will come from the 2016 bond.

When?

A solution has been identified. We will be pilot testing in first quarter of 2017 in order to estimate levels of effort and build implementation plans that will likely take us well into 2017-18.

2a. Investment in Student Devices

2020 GOALS SUPPORTED

- #1 Great Schools in Every Neighborhood
- #2 Foundations for Success in School
- #3 Ready for College and Career
- #4 Support for the Whole Child
- #5 Close the Opportunity Gap

Why?

The schools in DPS have very different distributions of student computing devices. In many cases, this reflects the variety of schools' philosophies and strategies. Many schools have opted to use technology funds for higher-cost devices or for technology other than student devices. These schools would naturally have fewer devices as compared to their enrollment. Many schools are in this same situation, not because of philosophy or strategy, but because of management decisions made by previous administrations. Getting more devices for student use, particularly having devices assigned directly to students, allows teachers to embed technology use more easily into their classrooms and to personalize student learning. It also empowers students to take ownership of their own learning, which is the heart of personalized learning.

What?

DPS will work to increase the number of student computing devices, as compared to each school's enrollment, and bring as many schools as possible to a level of one device for every student. Through an investment from the 2016 bond, mill levy funds, and ongoing general fund money, schools will be given the resources to increase their device to student ratio. We will also use a combination of funds to provide schools with the many supports needed to make these student devices useful, including systems and professional development.

How?

DPS has included a student technology investment in the 2016 bond and will provide significant funds to all schools for technology. DPS believes that Bring Your Own Device (BYOD) may be a viable option for student technology in years to come. However, at this time our best option is to provide district devices for building our 1:1 proof points. District devices provide the benefit of consistency of user experience and maintenance, ease the tech support burden in the classroom, and bring equity to our classrooms.

When?

Funds will be available to schools as early as January 2017. Use of funds may be at school discretion in conjunction with a strategic technology plan from the school. Additionally, refresh funds (half of initial allocation) will be issued to schools in January 2020.

2b. Student Devices: MyTech 1:1

2020 GOALS SUPPORTED

- #3 Ready for College and Career
- #4 Support for the Whole Child
- #5 Close the Opportunity Gap

Why?

Many schools in DPS are close to a 1:1 student-to-device ratio, and many schools have already moved to 1:1 in some way. However, few of these schools have allowed students to take devices home. These schools have not had district support to help them with the many logistical concerns of sending devices home with students. These include: repair and replacement, filtering, digital citizenship, and preparing teachers to shift to a blended learning model to take advantage of students having devices at home. We believe that allowing students to take devices home is one of the best ways to provide equitable access so all students can access materials when they need and own their own learning. Thus, DPS will fund and support 12 to 20 secondary schools in an intentional shift to a 1:1 take-home model.

What?

Through an investment from the 2016 bond, DPS will provide 12 to 20 secondary schools with the funds needed to invest in low-cost devices to assign directly to their students. We will also use a combination of funds to provide schools with the many supports needed to make these student devices useful, including systems and professional development.

How?

DPS will support a limited "opt-in" MyTech program for schools wishing to implement a 1:1 take-home model of student technology. Secondary schools will be selected based on their own interest in the program, several criteria to evaluate their likelihood of success, and several criteria to balance the implementation across the district. These schools will then receive funding and support to implement 1:1 across their school over the next three years. DPS believes that Bring Your

Own Device (BYOD) may be a viable option for student technology in years to come. However, at this time our best option is to provide district devices for building our 1:1 proof points. District devices provide the benefit of consistency of user experience and maintenance, ease the tech support burden in the classroom, and bring equity to our classrooms.

When?

Schools will be selected late in the 16/17 school year. Implementation will begin at the start of 17/18. Additionally, refresh funds (half of initial allocation) will be issued to schools in January 2020.

2c. Student Devices: MyTech Digital Coaches

2020 GOALS SUPPORTED

- #1 Great Schools in Every Neighborhood

Why?

Teachers need to be well supported in integrating technology in their classrooms. In a 1:1 implementation, that support is even more critical. Following the example of school districts that have rolled out 1:1 devices successfully, DPS believes that "digital coaches" – dedicated teachers assigned directly to schools with expertise in technology integration – are the best way to support the teaching staffs.

What?

DPS will hire 6-10 experienced teachers with demonstrated skills in the classroom, both pedagogical and technical. These digital coaches will then be trained to support a standard set of educational technology tools and assigned half-time to two schools each. The digital coaches will work within each school's professional learning framework to build teachers' skills and assist them in making meaningful use of technology in their classrooms.

How?

DPS included \$1 million in the 2016 mill levy to support the 2016 bond investment. This money is ongoing and will pay for digital coaches and their training through the life of the 2016 bond. At the end of the bond, DPS expects that the value of this support strategy will have been sufficiently demonstrated to expand this support to other schools integrating technology at this level.

When?

Hiring of the digital coaches will begin in February 2017. The coaches will be trained in spring of 2017 and assigned to schools in July 2017. Their assignments will run at the MyTech schools until at least summer 2020.

3. High Quality Digital Content - Curricula, Library System, eBooks

2020 GOALS SUPPORTED

- #2 Foundations for Success in School
- #3 Ready for College and Career
- #5 Close the Opportunity Gap

Why?

To facilitate a more student-centric learning environment that allows students to collaborate, work at their own pace, anytime, anyplace.

Digital content allows teachers to tailor content and learning for their students' needs, freeing them up to function as coaches and facilitators of learning rather than conveyors of content. Teachers that are not provided with High Quality Digital Content (HQDC) must spend time evaluating, curating, and maintaining digital content, and managing passwords and student data permissions instead of spending their time on the analysis of student data, lesson planning, collaborating, and providing tiered supports for students. It is extremely difficult to find open source content that is stable, curriculum aligned, at students' reading level, and free of advertising. District-purchased and managed digital content ensures ease of access for students with single sign-on and IP authentication, while also protecting student data privacy and copyright compliance. HQDC, including eBooks, have features that support student learning such as the ability to differentiate the lexile or reading level, dyslexic fonts, vocabulary supports, speech-to-text and audio books.

To promote equitable access for all students to learning resources that are available anytime, anyplace.

Consistency of HQDC, across the district is particularly critical for our most vulnerable students, who experience high rates of mobility. Once students become familiar with the content, structure and authentication for these resources, they are empowered with the resources and agency they need to succeed. HQDC such as eBooks, also creates print-rich home environments, a reliable predictor of literacy proficiency. While devices

and Internet access should be addressed in terms of providing access to digital curriculum and content to all students, neighboring districts with high levels of FRL have experienced high usage of eBooks outside of school time.

In Denver Public Schools, students at each grade level read at a variety of levels and in a number of different languages. A central eBook collection allows us to leverage eBooks across buildings in order to better meet student needs. For example, our middle school students will be able to access texts purchased for elementary school and high school (if they are developmentally appropriate).

To provide rich multimedia content that provides digital literacy experiences that lead to 21st century and digital assessment skills.

We know our students must become fluent 21st century learners and that reading online places a higher cognitive demand on the reader, which results in lower comprehension. Students also often report being more easily distracted while reading online. In order for students to successfully demonstrate their proficiency in literacy, math and content areas, they need to be able to successfully navigate the demands of digital assessments. Digital curriculum and eBooks both provide students with the opportunity to become digitally literate, an important part of college and career readiness. Students coming from poverty often face remediation in this area as they enter college environments.

What?

Digital curriculum, content and eBooks:

- Identify, evaluate, and implement a menu of digital curriculum and content offerings across all grades and content areas. Increase access to digital curriculum and eBooks, while promoting best instructional practices which integrate digital curriculum into student learning.
- Select and implement technology solutions that integrate both digital and print student resources with single sign-on, and allow sharing and curation of content across classrooms, schools, and the district at large.
- New integrated library system would be designed for the ECE-12 market that requires less user expertise and skill to navigate, with the flexibility to meet the needs of different schools (addresses high turnover in library para and teacher positions, increased

calendar flexibility for check-in/out, and ability to create policies that are responsive to school needs)

- New integrated library system would allow federated searching so students and teachers are aware of all (both print and digital) resources available to them. Curriculum departments, teachers, and students could curate and share digital content collections.
- Controlled social networking environment for eBooks, which increases students' reading motivation. Students share what they are reading, curate and share recommendations to peers, and rate eBooks.
- New integrated library system would work in support of the student learning platform. The integrated library system would provide meta data and sorting for resources that could then be curated and embedded into the student learning platform.

How?

DPS has included monies in the 2016 tech mill levy to fund digital curriculum, but this is not enough to replace all content areas every year (subscription-based curriculum). Some buildings are choosing to use textbook adoption funds to support a transition to a digital curriculum, such as South High School. Digital curriculum is also part of the textbook adoption review process. Current district-created scope and sequences refer to both purchased and OER. Library Services will continue to provide curriculum-aligned digital resources to support curricular objectives. Library Services will also provide professional learning related to intellectual property rights and digital resource curation in order to facilitate the use and sharing of OER.

DPS has also included monies in the 2016 tech mill levy to fund a districtwide eBook collection. Funding for eBooks supports independent reading, especially student choice, in order to positively impact reading motivation, and supplements the curriculum. It does not address the cost of novel sets.

Finally, DPS has requested funding in the 2016 tech bond to purchase an integrated library system that would provide improved access to both print and digital resources, and would allow curation along curricular units and objectives.

When?

There are dedicated funds from the 2016 mill levy for digital curriculum, which will be available to Curriculum and Instruction and schools in the fall of 2017. Funds

for the integrated library system will be available in January 2017 from the 2016 bond. Implementation is expected at the end of the 2017-18 school year. Funds were dedicated in the 2016 mill levy for a district eBook collection; texts will be selected when funds become available in fall 2017.

4. Professional Learning - Digital Capacity for Teachers and Leaders

2020 GOALS SUPPORTED

#1 Great Schools in Every Neighborhood

Why?

Placing devices in classrooms will not transform learning without professional learning to facilitate the necessary changes in planning and instruction. Due to the data, tools, and experiences technology affords, it can drive more personalized learning environments that are student-centered and competency based. However, a personalized, student-centered classroom requires intensive pedagogical shifts. As with any pedagogical shift, transformative use of technology needs to be modeled, coached, and supported with professional learning structures on an ongoing basis. We need to guide teachers and building leaders in building their own awareness of their competencies in digital literacy so they can own and facilitate their own learning, in addition to that of their students. The Educational Technology Department plans to use ISTE standards for teachers and administrators as these sight lines, and models as such the SAMR swimming pool, Technology Integration Matrix (TIM), and TPACK to guide technology integration best practices.

What?

Design and facilitate professional learning opportunities for teachers and building leaders that support pedagogical shifts in instruction and lead to the transformative use of instructional technology to support student success.

How?

The Educational Technology and Library Services Department currently leads, and provides professional learning in digital literacy for all DPS teachers, school staff, and central departments. These professional learning opportunities currently employ a variety of structures that include traditional in-person classes, online facilitated sessions, districtwide PDUs, Green-Day Professional Learning for Teacher Librarians and Technology Teachers, Professional Learning

Communities in buildings, conference-style days in buildings, weekend events such as DEPLA, choice-based rotations called "tech depots," and 1:1 coaching. Some of these professional learning sessions include partnerships between Educational Technology and Professional Learning Center. ETLS and the Professional Learning Center are in the process of designing professional learning in Schoology to model the use of Learning Management Systems and personalize digital literacy learning experiences.

A 1:1 toolkit is in development to support buildings with their transition to a 1:1 environment. This toolkit includes a professional learning scope and sequence which Educational Technology Specialists will work with building leaders to understand and implement. This includes a mix of the professional learning structures described above, which could be facilitated by the ETLS department and building personnel such as teacher librarians, technology teachers, teacher leaders, STRs, building leaders, and classroom teachers.

As mentioned earlier, MyTech buildings will also have .5 FTE digital coaches.

When?

As part of the 2016 mill levy, MyTech buildings will have a .5 FTE digital coach. ETLS will continue to provide professional learning experiences and will support buildings with the development of a professional learning plan as part of their 2017 tech bond purchasing plan. The 1:1 toolkit will be available in January of 2017.

5a. Network Readiness - Dark Fiber Implementation

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#1 Great Schools in Every Neighborhood

Why?

To make devices useful, we must have adequate bandwidth and wireless coverage so that learning can happen anytime, anywhere in school. To prepare for increasing devices per users, increasing use of cloud-hosted solutions/applications, and increasing demands for network/wireless coverage, we want to increase the district's ability to provide low-cost network bandwidth, allowing us to provide bandwidth aligned with schools' needs. This project will save DPS approximately \$5 million over 10 years and allow us to increase bandwidth to schools. Additionally we will replace old wireless

equipment to mitigate risk, while expanding geographic coverage area and bandwidth for increased student/staff access to increased content and applications.

What?

Build out a dark fiber network, including considerations for creation of community Wi-Fi hotspots if allowable under legislation (replace wireless controllers and access points, and upgrade all switching). Replace all LAN and SAN equipment (switches and routers) 10 years or older, adding redundant Nexus and Aggregation Services Routers (Secondary Data Center). Replace aging Storage Area Network infrastructure equipment.

When?

This project is made possible, in part, through a federal reimbursement program for bandwidth to schools, called eRate. Additional funding will come from the 2016 bond. Implementation would occur over a three-year period, between 2017 and 2020.

5b. Network Readiness - Wireless Network Upgrade

2020 GOALS SUPPORTED

#1 Great Schools in Every Neighborhood

Why?

Wireless technology need in DPS has grown rapidly in the last few years due to increases in student technology devices, online assessments, and the growing educational technology solutions being used in the classrooms. Approximately 34,000 client devices concurrently connect on a daily basis to DPS wireless network with more than 100,000 unique clients connecting on a weekly basis. Over 60% of all network traffic now travels on our wireless network (vs. our cabled devices). There are 7,736 wireless access points (WAPs) installed in the district, and all DPS classroom spaces are covered with a 30:1 density. Indoor common areas in all schools are also covered with a 30:1 density – often insufficient coverage for full occupancy of these spaces.

What?

The project will replace all 7,736 existing WAPs with current versions and augment common areas to provide adequate coverage for full occupancy in these spaces. We will determine if full augmentation is financially possible once final quotes are in from the WAP Cabling RFP. Our priority is replacing the end-of-life WAPs.

How?

Replace older WAPs that are reaching end of life and only allow for 30:1 client ratio and up to 300 mbp with newer WAPs designed for higher client density and up to 640 mbps and beyond.

When?

This project will begin summer 2016 and complete by summer 2018. As WAPs typically have a three- to five-year lifespan, we will anticipate a subsequent upgrade to begin in 2020.

5c. Support - School Tech Partners

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#1 Great Schools in Every Neighborhood

Why?

It is useful to differentiate between technical support and instructional support for technology. The former is the necessary support to troubleshoot hardware and software to keep it running smoothly. The latter is the support that teachers need to use technology successfully in the classroom. This includes building capacity in teachers' skills, coaching on the use of technology in the classroom, and even co-planning and co-teaching. Currently, the technical support begins with a School Technology Representative (STR). Each school assigns one person to this role. The job description for this person and role varies dramatically from school to school, as does the amount of dedicated time, pay scale, and skill level.

What?

Create a pool of centrally hired and managed STRs to allow schools to buy into a DoTS-managed program that would ensure standard job role definition, consistent training and communication processes, consistent planning support, and a dedicated first line-of-defense for issue resolution.

How?

Start with a pilot team of about five centrally managed resources for schools to buy into .5 resource in support of up to 10 schools. Rate for "buy-in" would align with appropriate technical resourcing, rather than experienced teacher pay grades.

When?

Pilot underway for school year 2016-17.

6. Support - Academic Technology Menu

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#1 Great Schools in Every Neighborhood

#4 Support for the Whole Child

Why?

As schools and teachers introduce more and more new technologies to students in their classrooms, there are two large issues that must be addressed: (1) ensuring teachers have access to the highest quality tools available and (2) protecting our students' data. DPS has created the Academic Technology Menu (ATM) to address those needs.

What?

The goal of the ATM is to have a comprehensive view of the technologies in use in the DPS community, ensure we are using the most impactful tools, and are protecting our students' data to the fullest extent. The ATM is a website where teachers, school leaders, and DPS departments can see the list of academic

technology resources and tools supported by the district and other tools being utilized throughout DPS. This allows teachers to learn about new and existing resources, understand what is in use, whether DPS departments endorse content and applications, if the applications have FERPA agreements in place, and how these tools will be supported by the district. The ATM also provides teachers and leaders guidance and support in protecting student data. As applications are adopted by schools, and if they are not already protected by student data privacy agreements, the ATM provides assistance for schools to take appropriate measures in protecting student data by providing guidelines for obtaining data-sharing agreements or obtaining parent consent for classroom use.

How?

The content is populated and managed by members of the Academic Technology Committee including individuals in several departments. C&I, Legal, DoTS, ELA, and SEO review each application to determine their recommended use. Those recommendations are published for consumption by educators. Teachers and school leaders may also propose new technologies be reviewed and added to the ATM.

When?

The ATM launched in September 2015 and will be continuously updated with new content and features to meet the needs of the DPS community.



IF YOU HAVE QUESTIONS OR WOULD LIKE TO LEARN MORE, PLEASE EMAIL

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