

SHREWSBURY PUBLIC SCHOOLS

CURRICULUM AND TECHNOLOGY FY17 BUDGET DETAILS AND RECOMMENDATIONS

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OVERVIEW: THE SYNERGY BETWEEN CURRICULUM AND TECHNOLOGY BUDGETS

As instructional resources are increasingly digitized, the curriculum and technology budgets are becoming interconnected and interdependent of one another. While this report separates out curriculum/instruction and technology expenditures, the two departments now work in tandem with one another to deliver a high quality instructional experience to Shrewsbury's students.

DIGITAL INSTRUCTIONAL TOOLS

Please find below links to a number of digital instructional tools that redefine learning experiences for Shrewsbury students. These tools only become viable in 1:1 learning environments and provide opportunities for personalized learning, assessment, and feedback that would not available in more traditional classrooms.

ALEKS

Assessment and Learning in Knowledge Spaces is a Web-based, artificially intelligent assessment and learning system. ALEKS uses adaptive questioning to quickly and accurately determine exactly what a student knows and doesn't know in a course. ALEKS then instructs the student on the topics she is most ready to learn. As a student works through a course, ALEKS periodically reassesses the student to ensure that topics learned are also retained. ALEKS courses are very complete in their topic coverage and ALEKS avoids multiple-choice questions. A student who shows a high level of mastery of an ALEKS course will be successful in the actual course she is taking. ALEKS also provides the advantages of one-on-one instruction, 24/7, from virtually any Web-based computer for a fraction of the cost of a human tutor.

(Source aleks.com)

https://www.aleks.com/video/k12_tour

Listen Current

Listen Current brings authentic voices and compelling non-fiction stories to the classroom. This resource curates the best of public radio to keep teaching connected to the real world and build student listening skills at the same

time. It also includes interactive transcripts of interviews and stories, supports for English Language Learners, and the ability to customize and differentiate assignments.

https://listencurrent.com/how_it_works

LightSail

Progress monitoring is embedded into daily practice in a natural way. Students answer multiple-choice, written-response, and Cloze assessments throughout each text. As student ability grows, LightSail tracks achievement and updates the selections in each reader's library – that way, students are always reading just right texts.

LightSail's educators have also built several key motivators into the app! Students can track their progress against individual reading goals, check their Lexile scores and the number of texts they've completed and show off their achievement badges – all via their personal data dashboard. Readers can also chat with peers and teachers during the reading experience using LightSail's in-app social network.

Source: lightsailed.com

<https://www.graphite.org/app/lightsail>

SHS STUDENT INNOVATION TEAM: VALUE ADDED TO CURRICULUM, INSTRUCTION, AND PROFESSIONAL DEVELOPMENT

The Shrewsbury High School Student Innovation Team (SIT) has successfully completed its first semester as a student-run help desk. SIT is a semester-long course that students in grades 9-12 can choose to take as an elective. Along with serving as the first line of tech support for both students and staff members, this team also enhances teaching and learning across the school.

Services Provided to Support Student Learning

- Offers tech support (during school day and before/after school) This document contains a student-generated analysis of the types of issues resolved by SIT: <https://docs.google.com/spreadsheets/d/1TMb3y2K4eUXRF0bpdKv5x7EyF2w3EGKoGcH33dbHaA/edit#gid=0>
 - Supports technology integration projects for courses
 - Creates digital citizenship videos used to teach the entire student body about the care and protection of their iPads and how to interact positively in the digital world https://drive.google.com/file/d/0B7_XPZNdacQGaEN1MzkyQnhRaVU/view?usp=sharing
 - Provides a model for project based learning through the team's Independent Learning Endeavors (ILEs)
-

Services Provided to SHS Staff

- Offers tech support (during school day and before/after school)
- Develops of technology training resources in collaboration with Ms. Gauthier, for example this AirServer presentation for all SHS:

<https://docs.google.com/presentation/d/1-x6crBsiBe0K17cDRTWHZgQRWRF-YUSZD0qCq9C9yJs/edit#slide=id.p>

- Supported school counseling department in the creation of a video that will be used to introduce incoming freshmen to SHS

CURRICULUM AND INSTRUCTIONAL TECHNOLOGY BUDGET DETAILS

Curriculum and Instruction Budget

| Account | FY2016 Budget | FY2017 Proposed Budget | Difference |
|------------------------------------------------------|------------------|------------------------|-------------------|
| Mentoring Stipends | \$28,000 | \$28,000 | \$0 |
| Curriculum Development | \$50,000 | \$50,000 | \$0 |
| Professional Development Contractual Services | \$80,500 | \$80,500 | \$0 |
| Texts/Instructional Equipment | \$254,288 | \$218,288 | (\$36,000) |
| Educational Supplies | \$2,500 | \$2,500 | \$0 |
| Travel Professional Development | \$2,500 | \$2,500 | \$0 |
| Dues and Membership | \$3,500 | \$3,500 | \$0 |
| Conference Professional Development | \$23,000 | \$23,000 | \$0 |
| TOTAL | \$444,288 | \$408,288 | (\$36,000) |

Notes on FY17 Curriculum and Instruction Budget

| Item | FY17 Cost |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Mentoring Stipends | |
| This cost provides mentors for new professional staff hired in Shrewsbury. It is anticipated that we will be able to shift this cost over to the Title IIA grant for FY17. | \$28,000 |
| Curriculum Development | |
| This line item provides funds for various summer and school year curriculum projects. The district is currently engaged in curriculum work related to the new science standards. This line item also funds the development and organization of digital resources. This work should eventually reduce the district's need for textbook replacement. | \$50,000 |
| Professional Development Contractual Services | |
| This line item will primarily support the SET course for new teachers, the Primary Source Partnership, Early Release and Professional Day trainings, and consultants for science and project based learning initiatives. | \$80,500 |
| Texts/Instructional Equipment | |
| Most of the instructional materials being purchased are now digital: Aleks, French digital curriculum materials, Mathematica, accounting software, Listen Current, Noodle Tools, Lightsail, and various apps. This line item was reduced by \$36,000 for FY17 due to the availability of additional free digital resources. The consumable math resources for K-5 and replacement costs for Project Lead the Way Vex Kits are also included in this line item. | \$218,288 |
| Conference Professional Development | |
| This line item supports our teachers in attaining the necessary qualifications to teach AP courses, and funds to provide teacher leaders the opportunity to attend conferences that support the district's strategic priorities. | \$23,000 |

Instructional Technology (IT) Budget*

| Account | FY2016 Budget | FY2017 Proposed Budget | Difference |
|--------------------------------------|------------------|------------------------|------------------|
| PD: Dues & Memberships | \$1,530 | \$450 | (\$1,080) |
| PD: Conferences | \$0 | \$350 | \$350 |
| Inst. Tech: Supplies | \$17,122 | \$19,000 | \$1,878 |
| Inst. Tech: Networking | \$110,515 | \$145,050 | \$34,535 |
| Inst. Tech: Hardware | \$428,230 | \$678,000 | \$249,770 |
| Inst. Tech: Software | \$76,750 | \$86,000 | \$9,250 |
| Networking Infrastructure | \$49,512 | \$7,000 | (\$42,512) |
| Data Processing | \$9,553 | \$11,155 | \$1,601 |
| AV Supplies | \$4,590 | \$7,069 | \$2,479 |
| AV Equipment | \$7,650 | \$7,650 | \$0 |
| Repair and Maintenance: Equip | \$41,300 | \$61,520 | \$20,220 |
| TOTAL | \$831,202 | \$1,123,889 | \$291,987 |

* Please note that this budget detail does not include salaries and wages or line items for Media Services, both of which are included in the ITAMS total on page 30 of the budget book.

Notes on FY17 IT Budget

The major drivers of increases in the IT budget are listed below. A number of smaller increases in maintenance and software costs are also included in the budget request.

| Item | FY17 Cost |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Inst. Tech: Hardware | |
| Additional 1:1 iPads beyond lease equity rollover 458 iPads for Grade 9, a projection of this expense was documented in the 12/17/14 School Committee report that outlined the finances of moving to a district supported 1:1 program. | \$217,092 |
| iPad cases for Grade 5 This is a new expense for FY17, as the cases for the initial SHS deployment and this year's Grade 5 were purchased in FY15. A projection of this expense was documented in the 12/17/14 School Committee report that outlined the finances of moving to a district supported 1:1 program. | \$14,460 |
| iPad cases for Grade 9 This is a new expense for FY17, as the cases for the initial SHS deployment and this year's Grade 9 were purchased in FY15. A projection of this expense was documented in the 12/17/14 School Committee report that outlined the finances of moving to a district supported 1:1 program. | \$50,367 |
| Inst. Tech: Networking | |
| Wi-Fi access point maintenance The initial purchase of wireless access points (including those installed as part of the Sherwood building project) included three years of maintenance, and are coming due for renewal. | \$15,338 |
| Networked storage maintenance The initial purchase of our main networked storage array as part of the Sherwood building project included three years of maintenance and has come due for renewal | \$16,403 |

RECOMMENDATION FOR REALLOCATION OF CLASS OF 2016 IPADS

For the 2015-2016 school year, in keeping with past practice in our 1:1 program, new iPads were acquired for all grade 5 students. In addition, to launch the 1:1 program at the High School, iPads were acquired (via a lease with a purchase option) for all High School students. This presents us with a rather unique opportunity to reallocate the iPads that were used for one school year by the Class of 2016.

Our recommendation is to reallocate the 400 iPads currently assigned to the Class of 2016 as follows:

- Provide an additional 132 iPads to Grade 4 to complete the outfitting of all grade 4 classrooms with an iPad cart with one iPad for every two students
- Begin replacing aging iPads elsewhere in the District, including elementary, special education, and staff-assigned iPads

This reallocation will allow us to maintain our planned four-year cycle for student 1:1 iPads and avoid \$175,096 in costs for replacing aging iPads across the District and expanding the grade 4 1:2 program.

iPad Lifespan - 2 Critical Issues

At the inception of Shrewsbury's 1:1 Digital Conversion in 2012, the planned lifecycle of student 1:1 iPads was four years. At the time there was some uncertainty as to the true lifespan of the devices, and the District was aggressive in committing to a four-year replacement cycle, while other districts were committing to three-year replacement cycles. The District's experience is proving that four years is a workable lifecycle. However, extending the lifecycle beyond four years carries risks based on two main factors: hardware durability and software support.

Hardware Durability

The 2015-2016 school year is the fourth year of use for the current eighth grade 1:1 iPads. This school year has seen an increase in the number of device malfunctions, likely due to the heavy use and handling conditions that the devices experience. From August 2015 through January 2016, increasing numbers of the Grade 8 iPads have experienced some sort of malfunction not directly attributable to being dropped or hit. For example, this school year, only 10 Grade 7 iPads have failed, while 34 Grade 8 iPads have failed. As the iPads fail, loaners need to be made available to students and there is both a staff and hardware cost to this process. In addition, there is an educational impact to students when their iPads are out of service. Malfunctions have included button malfunctions, screen malfunctions, and general failures. As the devices become older, the repair costs in some cases are approaching and will likely soon exceed the value of the devices themselves.

Software Support

Software support is a significant factor in the lifecycle of iPads. Once an iPad is dropped from the list of devices that are supported by the latest operating system release, their usefulness in a 1:1 environment diminishes greatly due to inability to access app updates and support becomes much more complex. Additionally, older operating systems are generally dropped from support in standardized tests (for example, only operating systems released within the past two years are currently supported by PARCC). Because Apple does not publish support timelines for iPad models, we look to past practice to estimate future support. Based on this, it is risky to plan on iPad models being supported for more than four years. Attempting to increase the 1:1 replacement cycle beyond four years runs the risk of devices in use by the 1:1 program no longer having the ability to run the latest software (including standardized testing software), with little advance notice and limited ability to react within a budget cycle.

Grade 4 1:2 iPad Program

In the 2014-2015 and 2015-2016 school years, using Colonial Fund donations, the District began piloting the use of iPad carts in Grade 4 with a ratio of one iPad per two students. We recommend that this implementation be expanded such that all Grade 4 classrooms will have a cart with one iPad for every two students in the class.

The reason for our recommendation is that the grade 4 1:2 pilot has been very successful. The pilot teachers report that the iPads have had a positive impact on teaching and learning in their classrooms. Here are some of their comments about their experience:

- *Engagement and motivation is very high. Collaboration skills have definitely increased. I like the opportunity to create video tutorials on math skills or writing response skills and have them watch it to help support their learning. Nearpod has been really great for that! They especially love the opportunity to have online discussion in their guided reading groups on Schoology. Students are seeing an authentic purpose for the work, since so much of it is shared with other classrooms and parents.*
- *Students are more excited to learn and create new products to show their learning.*
- *The students are more engaged and willing to share their thinking throughout all areas of the curriculum.*
- *Students are comfortable working with iPads and they are excited and engaged in their learning. I am able to differentiate assignments, and find that all my students, including my struggling learners, are more motivated and eager to demonstrate their knowledge using the iPads. Students who were reluctant readers and writers regularly ask to use the iPad for reading and for sharing their stories.*
- *Students are learning to use a new form of technology, expanding on what they already know, and teaching each other. Students are learning through various modes- listening to books, watching videos, writing posts, and so forth. Students are using various apps to present information in new ways.*

Reallocating Class of 2016 iPads toward this purpose would avoid \$62,568 in costs for iPad purchases.

The cost of the apps used in this expansion are included in the curriculum budget.

In-District Non-1:1 iPad Replacement

The District now has an inventory of 46 non-1:1 first-generation iPads that can no longer run the latest software. In addition, there are 92 non-1:1 iPads that will be six years old by the spring of 2017, and 503 non-1:1 iPads that will be five years old by the spring of 2017. Our recommendation is to start a five-year replacement cycle for non-1:1 iPads. We believe that the five-year cycle, rather than a four-year cycle, is workable for non-1:1 iPads due to two main factors:

iPads that are not in use in the 1:1 program are handled more gently on a day-to-day basis than those that are used daily in the 1:1 program.

If the iPads that are not in use in the 1:1 program were to become obsolete due to the rescission of support for the latest operating system, the impact would be slightly more manageable for a year in non-1:1 uses.

Over the past few fiscal years, the budget has been focused on launching the 1:1 program in Grades 5-12, and fewer resources have been focused on replacing aging iPads elsewhere in the District. Starting a five-year replacement cycle for the non-1:1 iPads in use in the District would cost \$112,527 per year. While this initial expenditure would not ensure that all iPads are replaced after five years, it would balance the distribution of iPad models to be on track to accomplish this in the future. Reallocating 268 iPads from the Class of 2016 will allow the District to begin this cycle at no cost beyond that of the existing lease.
