



SHREWSBURY PUBLIC SCHOOLS

Office of Curriculum, Instruction & Assessment
100 Maple Avenue, Shrewsbury, MA 01545
Phone: 508-841-8403 Fax: 508-841-8661



Curriculum and Technology FY19 Budget Details and Recommendations

*A report prepared for School Committee by
Amy Clouter, Brian L'Heureux & Shawna Powers
February 28, 2018*

Overview: Fueling Teaching & Learning

In Shrewsbury our success is inexorably tied to our aspirations. Our mission statement, our core values, and our vision for future graduates drive our work:

The mission of the Shrewsbury Public Schools, in partnership with the community, is to provide students with the skills and knowledge for the 21st century, an appreciation of our democratic tradition, and the desire to continue to learn throughout life.

The role of the Curriculum, Instruction and Assessment office is to empower staff and students as they work towards this goal. As renowned educational researcher Michael



Fullan states, "Learning is the work." Simply put, the budget for this office helps to fund teaching and learning in the Shrewsbury Public Schools. Having a guaranteed and viable curriculum is a hallmark of an excellent school system. (Hattie, 2015) The results our students achieve are tied to the investments we've made in developing staff capacity, securing powerful tools and maintaining strong systems of support.

Curriculum & Instruction Budget Overview

Account	FY2018 Actual Budget	FY19 Proposed Budget	Difference FY18 Actual-FY19 Proposed
Mentoring Stipends	\$0	\$30,000	\$30,000
Professional Improvements	\$0	\$50,000	\$50,000
Curriculum Development	\$50,000	\$55,000	\$5,000
Professional Development Contractual Services	\$80,500	\$130,500	\$50,000
Texts/Instructional Equipment	\$129,508	\$132,098	\$2,590
Educational Supplies	\$2,500	\$2,550	\$50
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	\$291,508	\$429,148	+ \$137,640

The increase in allocations primarily reflects the need to provide required staff training (like anti bullying and mentoring) given anticipated uncertainty with federal support of education. In other words, these increases are safeguards to provide mandated supports if we suffer a loss in grant funding next year. In addition, the table shows modest increases in the allocations for equipment and supplies. Grant funding also plays a role in the budget.

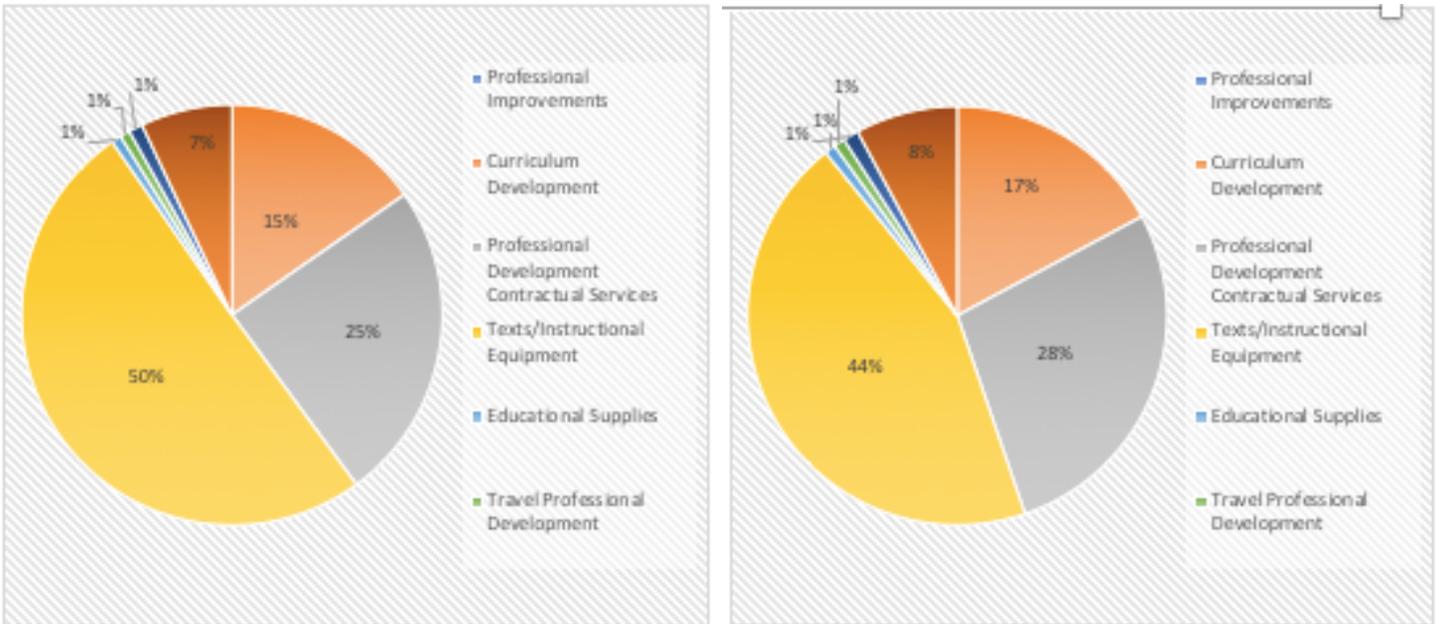
This year (in FY18), the cost of our mentoring program is covered by the Title II grant. This same grant is also funding professional development to support teacher teams in implementing the co-taught model at the Elementary level, which was possible due to an increase in our allocation from \$84,029 in FY 17 to \$106,783. As you know, last year the funds allocated for textbooks were reduced in an effort to close the budget gap. Given uncertainty with federal grants, further reductions in the proposed budget are more likely to limit our capacity to update materials and/or to sustain professional development initiatives.

Our initial work in strengthening school climates and providing professional development to staff interested in learning more about Social Emotional Learning (SEL) was also supported with grant funding this year. Going forward, it's important that we continue to align our efforts at the district, school and educator level in order to maximize resources.

For the most part, the budget for Curriculum, Instruction and Assessment is relatively stable. As you can see from the charts below, allocations proposed for FY 17 and FY 18 were startlingly similar:

FY 2017: \$326,792

FY 2018: \$291,508



Given the rapid pace of change present in society today, it should be no surprise that periodic investment in upgraded curriculum materials is also needed.

New Curriculum Needs

On the one hand, our investment in educational materials has changed considerably over time. Starting in 2015, the use of professional development to create instructional materials

Content Area	Anticipated Costs	Cost of Teacher Created Texts	Total Savings
9 th Grade World Civilization	\$53,625	\$9,500	\$44,125
10 th Grade US History 1	\$52,750	\$9,500	\$43,250
11 th Grade US History 2	\$46,250	\$9,500	\$36,750
5-8 ELA Writing Guide	\$93,400 (Write Source)	\$0	93,400
Total			\$217,525

resulted in a reduction of funds needed for textbooks, particularly at the high school.

At the same time, Shrewsbury's commitment to providing students access to rigorous coursework has material implications. At Shrewsbury High School, growing enrollment in Advanced Placement (AP) classes means we need to invest in new textbooks. This is a particular need in the Social Sciences where the textbooks are outdated. For example, this year purchasing a new edition of the current textbook for AP US History for the 65 students anticipated to enroll next year will cost \$4,875. With growing numbers expected at SHS, it will be important to attend to when text sets will exceed the ten-year window. Similarly, replacing and updating the sets of books used in English Language Arts across levels is likely to be an ongoing need that's not offset by our investment in technology.

Curriculum & Instruction Budget Details

Item	FY19 Cost
Mentoring Stipends	
This cost provides mentors for new professional staff hired in Shrewsbury. In FY17 we shifted this cost to the Title IIA grant. These federal grant funds may not be available for FY19.	\$30,000
Professional Improvements	
This cost provides support for professional development in the event that we lose some or all of our Title IIA grant funds.	\$50,000
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 reduces the district's need for textbook replacement.	\$55,000
Professional Development Contractual Services	
This line item will support the SET course for new teachers, the Primary Source Partnership, Early Release and Professional Day trainings, consultants for science and project-based learning initiatives. Next year these funds will fund relicensure costs and mandated state trainings.	\$130,500
Texts/Instructional Equipment	
Most of the instructional materials being purchased are now digital: Mathematica, accounting software, Listen Current, Noodle Tools, Digi+, and various apps. This line item was reduced by \$36,000 for FY18 due to the availability of additional free digital resources. The consumable math resources for K-5 are also included in this line item.	\$132,098
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 resources are increasingly digitized, and so the curriculum and technology budgets are increasingly interconnected and interdependent. This report seeks to separate out and summarize proposed expenditures for both the curriculum/instruction and technology departments, but it's important to note that these two groups work in tandem. Although investments may shift over time, our shared goal is to deliver a high quality instructional experience to Shrewsbury's students.

Digital Learning

Digital learning is well-integrated into instruction across all grade levels. For example, in the 1:1 environment teachers are using Apple Classroom, a no-cost classroom management tool, to monitor what students are doing on their digital devices during class time.

Importantly, Pathways, the platform used as the foundation for our professional development program for teachers, mirrors the model we aspire to offer students. Similarly, our investment in Schoology across the district facilitates communication between teachers, students and parents. As digital learning becomes more ubiquitous, low cost/no cost digital materials continue to become available. Although this work does incur some cost on our end, paying our teachers for their work is a sound investment. First, tools we develop here are well matched to our needs. Moreover, digital tools are a savings when compared with textbook expenditures. Finally, this approach depicts well the skills our educators have and their efforts serve as models in the district. This fall for example Emily Bredberg, a Media specialist at Shrewsbury High School, developed research resources for staff to facilitate their own professional development and to enhance their research work with students. She shared these resources with teachers during professional development pathways this year. The link to this resource is here:

<http://shrewsburypathways.weebly.com/explore-through-research.html>

Another area where we see the growth in the use of digital devices follows changes in the state testing platform. The Department of Elementary and Secondary Education recently clarified their expectation that students will have experience working in a digital environment prior to taking the new MCAS assessment online. Accordingly, we plan to build on our efforts to integrate technology into the curriculum in Grade 4.

Fourth Grade 1:2 Program

We are currently in our second year of the implementation of a 1:2 iPad program at the fourth grade level. In all 4th grade classrooms across the district, there is one iPad for every two students. Teachers utilize the iPads to enhance teaching and learning across the

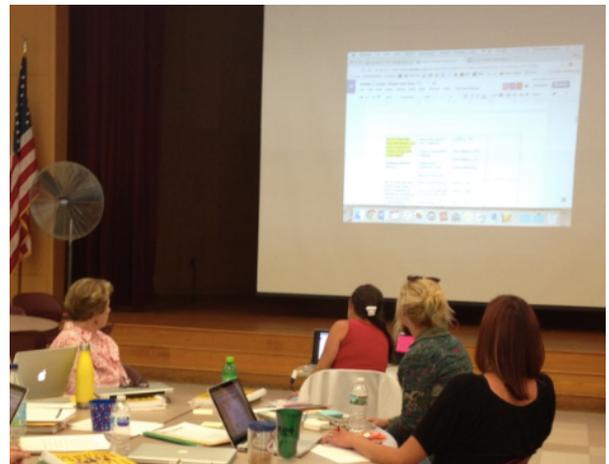
subject areas. Sometimes students work in pairs on collaborative projects and other times students rotate through stations, some of which involve iPad use.

Consistent access to iPads in their classrooms enables teachers to plan lessons, units, and projects that integrate technology in meaningful ways. It also provides teachers with opportunities to take advantage of teachable moments that are enhanced through technology.

Having twelve iPads in the classroom also provides teachers with the opportunity to provide their students with easy access to special events and activities. In December, many fourth graders across the district participated in the Hour of Code to celebrate Computer Science Education Week. Many students engaged with block coding activities that introduced them to computational thinking concepts.

Most instructional tools available for use with iPads are available at no cost, including:

- Nearpod
- QR codes
- Padlet
- Google Drive/Docs
- Pages
- Numbers
- Keynote
- iMovie



Going forward, it will be important to consider which tools are the best match for teaching and learning at the Elementary level, as some tools used at other levels like (Book Creator and Notability) are fee-based. This is particularly important because as we expand the iPad program to Grade 3 in the year ahead we anticipate investing resources in training for teachers as well as devices and applications.

Digital Instructional Tools

As a result of Shrewsbury's investment in personal technology devices, students can now access digital instructional tools that serve to positively redefine learning experiences. These tools better prepare them for the learning and working environments they will encounter in their future. For example, STEMSCOPES is a digital resource that is currently being piloted to enhance Science instruction.

STEMSCOPES

Combining digital resources, supplemental print, and hands-on science, STEMscopes adapts to individual teaching styles while increasing engagement, rigor, and student achievement. With a vast research backbone, extensive and continuous teacher input, and a 24/7 professional development portal, STEMscopes helps teachers deliver meaningful

content in an accessible format for a variety of purposes. Pilot teachers and teams at both the Elementary and Middle levels will be using this new tool.

Information Technology Budget Overview

The Information Technology department is responsible for the purchasing, implementation, maintenance, and support of technology within the district. As the use of technology by teachers and students has increased, the reliability of technology in the district has become increasingly important. In addition to ensuring the reliability of existing services, devices that were formerly not IT-based are becoming increasingly dependent upon IT services (e.g., security cameras, copiers, cafeteria point-of-sale systems, etc.). The proposed IT budget supports these functions.

Account	FY2018 Actual Budget	FY19 Proposed	Difference
PD: Dues & Memberships	\$450	\$450	\$0
PD: Conferences	\$3,750	\$4,000	\$250
Inst. Tech: Supplies	\$19,000	\$19,380	\$380
Inst. Tech: Networking	\$133,000	\$133,000	\$0
Inst. Tech: Hardware	\$648,150	\$873,355	\$225,205
Inst. Tech: Software	\$136,723	\$100,000	-\$36,723
Networking Infrastructure	\$83,000	\$42,000	-\$41,000
Data Processing	\$118,000	\$136,000	\$18,000
AV Supplies	\$7,069	\$7,210	\$141
AV Equipment	\$7,650	\$226,316	\$218,666
Repair and Maintenance: Equip	\$61,520	\$61,520	\$0
TOTAL	\$1,218,312	\$1,603,231	\$384,919

* Please note that this budget detail does not include salaries and wages or line items for Media Services, both of which are included the ITAMS total on page 29 of the budget book.

Information Technology Budget Details FY 19

The major drivers of increases in the IT budget are listed below.

Item	FY19 Cost
------	-----------

Inst. Tech: Hardware

Planned increase due to iPad Lease for incoming Grades 5 & 9 and continuation of initial HS lease. This increase was projected as part of the FY17 budget process. In FY20, lease costs will be reduced below the FY18 level and achieve a steady state as the initial HS lease payments are completed (see table below).	\$99,189
Grade 3 1:2 iPads, required for state-mandated online MCAS testing in Spring 2019	\$123,184

Inst. Tech: AV Equipment

Replacement of SHS classroom projectors (phase 1 of 3) - This would replace older/failing cart-based projectors with wall-mount short-throw projectors, increasing reliability and freeing needed classroom space.	\$83,333
Replacement of Oak classroom projectors (phase 1 of 3) - This would replace older/failing cart-based projectors with wall-mount short-throw projectors, increasing reliability and freeing needed classroom space.	\$83,333
Replacement of elementary classroom projectors - Older elementary interactive projectors are failing due to age and related software is no longer supported.	\$52,000

iPad Lease Schedule	FY16	FY17	FY18	FY19	FY20
Lease 1 (Grades 5, 9, 10, 11, 12 in FY16)	\$278,707	\$278,707	\$278,707	\$278,707	
Lease 2 (Grades 5 & 9 in FY17)		\$108,016	\$108,016	\$108,016	\$108,016
Lease 3 (Grades 5 & 9 in FY18)			\$94,067	\$78,817	\$78,817
Lease 4 (Grades 5 & 9 in FY19)				\$99,189	\$99,189
Lease 5 (Grades 5 & 9 in FY20)					\$98,779
Total	\$278,707	\$386,723	\$480,790	\$564,729	\$384,801

Personnel Requests FY 19

The initial FY 2019 budget request includes two IT-related positions:

Tier 2 IT Support Specialist

Over time, the build-out of interactive projectors in all grade PK-6 classrooms, combined with the purchase of projectors for all Oak and HS classrooms, has expanded the footprint of audio/visual equipment needing support. In addition, the evolution of audio/visual equipment into “mission-critical” status for many teachers has significantly increased the pressure to resolve any issues as quickly as possible.

At the same time, the complexity and breadth of our network has exposed the need to expand our capacity to handle localized issues that are above the level of complexity that our front-line technicians typically handle. These issues include things like wiring issues, access point issues, device management issues relating to specific devices, localized phone issues, etc. This has resulted in a backlog of important, but not urgent, tasks.

This proposed position would serve as the first escalation point for basic A/V and network issues, improving our ability to respond to issues that are critical for individual staff members and classes and freeing capacity to resolve other issues that affect larger numbers of users.

Clerical Support (shared FTE with student data responsibilities)

The continued support of over 3,800 iPads in the hands of students on a daily basis has surfaced a number of clerical tasks. These tasks include the periodic inventory of the iPads required by the Town’s auditors, following up on iPads and accessories that are not returned upon student withdrawal, filing device repair insurance claims, and the issuance of and follow-up on iPad repair invoices.

These clerical tasks are currently performed by a combination of non-clerical IT staff and school secretaries at multiple buildings. The addition of this position would free time to allow IT staff to attend to their primary technical duties, and would allow for operations that are currently distributed across buildings to be streamlined and consolidated.

1:1 Device Replacement Cycle

Our replacement cycle for 1:1 iPads is four years. This cycle has the logistical advantage of corresponding with students' four years of middle school and four years of high school, allowing us to issue refreshed devices upon students' transition from middle to high school and collecting them upon graduation.

While Apple traditionally does not announce hardware support timetables, our experience has shown that iPads no longer support the current operating system within a few months of their retirement from front-line use in our 1:1 program. For example, the 4th Generation iPad, used by our current 9th grade students during their time at Sherwood and Oak, did not support iOS 11, which was released this past October.

The software used for MCAS testing, "TestNav," supports only the current iOS, plus one previous revision. This allows us to use some of the slightly older devices as loaner devices for MCAS testing cases where student iPads are not charged on testing days, or other device issues prevent the successful completion of testing with a student's normal assigned device.

In addition to iOS support, reliability is a key concern when considering a 1:1 device replacement cycle. To date during the 2017-18 school year, the rate of non-breakage malfunction of devices in their fourth year of usage has been more than double that of devices in their third year of usage. Extending the cycle beyond this risks creating additional challenges for students, teachers, and IT staff in terms of managing device malfunctions.

Device Choice - Evaluation of Chromebooks

While we have made a substantial investment in iPads, we continue to evaluate other potential 1:1 devices to ensure that iPads continue to be the best option for us. SHS students from the Student Innovation Team have been evaluating Chromebooks by using them to complete their classwork and homework assignments. The students have shared very informative feedback including the following:

- "The greatest issue with the Chromebook is not being able to draw."
- "If I were to use the Chromebook for regular math work, it would be extremely difficult because you can't draw on it."
- "With a math class that is heavily electronic it would be a hassle to write out equations."
- "Absence of several apps"

- "Lack of iMovie"
- "The biggest problem is that several people rely on Notability."
- "There is not software that allows me to open up pdf documents, which is 95% of my work "

Chromebooks are designed for accessing Google apps for education including Google Docs, Sheets, Slides, and Forms. They work very well for these purposes. However, these Google apps are also accessible on iPads. In addition to Internet searches and utilizing Google apps, iPads provide access to a wide range of academic tools that are not accessible on Chromebooks. A few major advantages of iPads are that they provide access to apps that are widely used by our students and teachers including Notability, iMovie, and the bi-directional camera. One subject area in which iPads far outperform Chromebooks is Mathematics. The ability to draw using a finger or a stylus on an iPad is far superior to the touch screen capabilities of even a high-end Chromebook.

Because students have become adept at utilizing iPads as an academic tool, and teachers have invested a great deal of time in developing lessons and projects that enhance student learning through the integration of apps specific to iPads, it would take a compelling reason to move from our current device choice. Thus far, we continue to conclude that iPads remain a more robust tool for teaching and learning.

Reallocation of Class of 2018 iPads

For the 2017-2018 school year, in keeping with past practice in our 1:1 program, new iPads were acquired for all grade 5 and 9 students.

We have been fortunate to be able to reuse the graduating seniors' iPads over the past few years to upgrade many of our non-1:1 iPads; using the Class of 2016-2017 iPads, all but 50 of these iPads will have been upgraded to the iPad Air 2 model. Our plan is to reallocate the approximately 50 of the iPads currently assigned to the Class of 2018 by continuing to replace aging iPads elsewhere in the district, including elementary, special education, and staff-assigned iPads. Beyond the iPads used for the upgrades, we plan to trade in remaining Class of 2018 iPads, using this trade-in to lower the lease costs for our grade 5 and 9 iPad purchases.

This reallocation will allow us to maintain our planned four-year cycle for student 1:1 iPads and delay significant predictable costs for replacing aging non-1:1 iPads across the district.

A number of recommendations were shared as part of the Strategic Priority report in November 2017. What follows is a summary of ways in which professional development is linked to our strategic work:

Space and Resources to Support Effective Learning

- Provide effective professional learning opportunities for staff to build teaching and leadership capacity
- Consider materials needed to support growing enrollment at SHS

Connected Learning for a Complex World

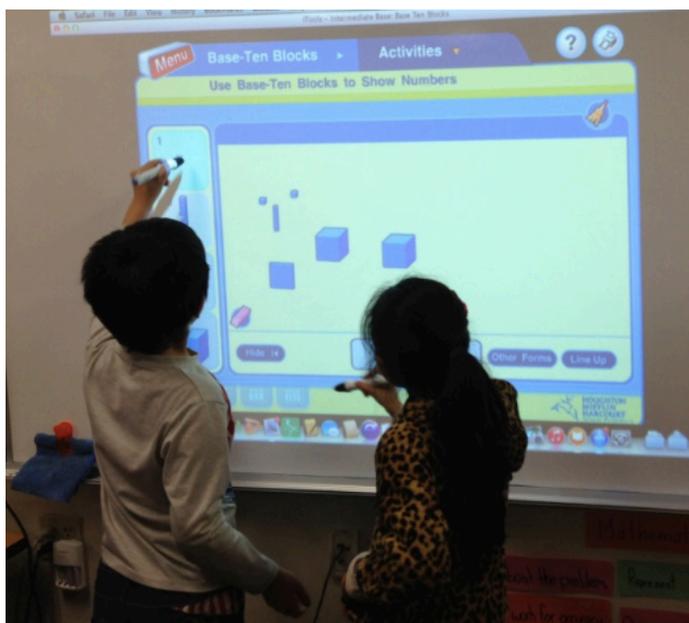
- The *Portrait of A Shrewsbury Graduate* depicts a common vision for PBL education in SPS. Now we need to ensure that students have access to personnel, technology, and instructional materials to achieve expected levels of learning, including Integrating project-based learning experiences that require students at all grade levels to create complex, high-quality work for an authentic audience, with an emphasis on the “4 Cs” , namely critical thinking, communication, creativity, and collaboration
- Sustain efforts to integrate technology into routine instruction, with an emphasis on digital citizenship and responsible use of devices.

Learning Environments Where Everyone’s Success Matters

- Ensure that all staff actively participate in professional development focused on inclusive and culturally proficient practices that improve learning and school cultures

Enhanced Wellbeing of All

- Ensure that all staff actively participate in professional development focused on the skills, habits, and mindsets of social and emotional learning that improve students’ learning, resilience, and focus.



Conclusion

"Around here, we don't look backwards for very long. We keep moving forward, opening up new doors and doing new things, because we're curious...and curiosity keeps leading us down new paths."



The quote above comes from the Disney Company, but it depicts the continuous improvement cycle that is so present in Shrewsbury equally well. In our school district, our strength is found in our people. Our people - students and staff alike - are strongest when they are well provisioned and highly engaged. It's our privilege and responsibility to craft a budget that both meets their needs and accounts for their collective aspirations.

Appendix

Please click these links for more information on digital tools:

Apple Classroom

http://images.apple.com/media/us/education/2016/1e867897_5de3_45db_ac71_d635d1_ccb5a5/inspiration/classroom-app/education-classroom-app-cc-us-20160427_r848-9dwc.mov

STEMScopes: <http://stemscopes.com/home.php>

Nearpod: <https://nearpod.com/>

QR Codes: <https://www.whatihavelearnedteaching.com/using-qr-codes-in-the-classroom/>

Padlet: <https://padlet.com/features>

I Movie: <https://www.apple.com/imovie/>