



Educational Technology @ LSRHS



Past, Present & Future



School Committee Presentation October, 2012



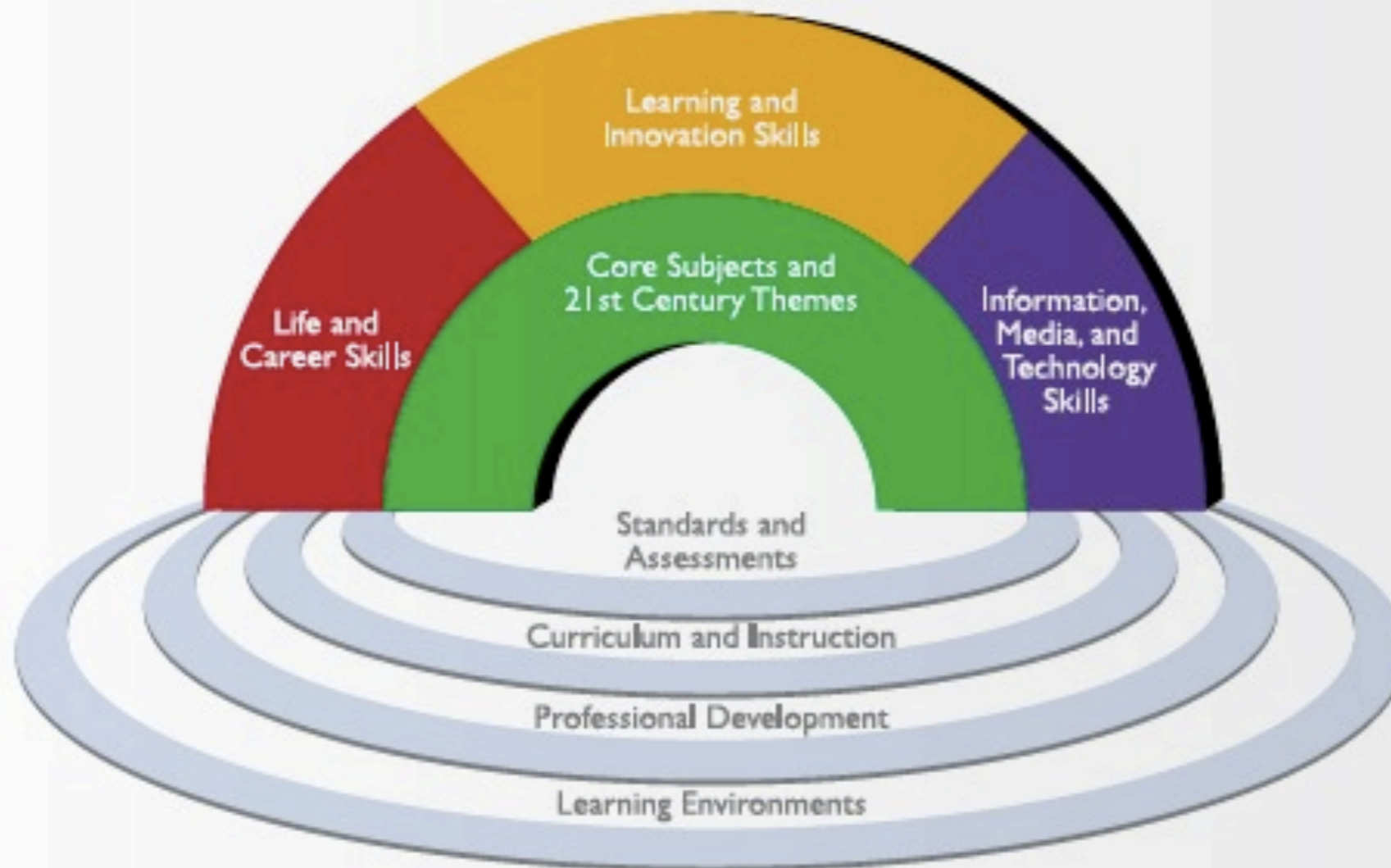
Beyond

- Readin' &
- 'Ritin' &
- 'Rithmetic

21st Century Skills

The Partnership for 21st Century Skills has developed a vision for 21st century student success in the new global economy.

21st Century Student Outcomes and Support Systems



http://www.21stcenturyskills.org/index.php?option=com_content&task=view&id=254&Itemid=119

What are these skills?

21st Century Themes

- **Global Awareness**
- **Financial, Economic, Business and Entrepreneurial Literacy**
- **Civic Literacy**
- **Health Literacy**

Learning and Innovation Skills

Learning and innovation skills are what separate students who are prepared for increasingly complex life and work environments in the 21st century and those who are not. They include:

- **Creativity and Innovation**
- **Critical Thinking and Problem Solving**
- **Communication and Collaboration**

Communication & More!

Information, Media and Technology Skills

People in the 21st century live in a technology and media-driven environment, marked by access to an abundance of information, rapid changes in technology tools and the ability to collaborate and make individual contributions on an unprecedented scale. To be effective in the 21st century, citizens and workers must be able to exhibit a range of functional and critical thinking skills, such as:

- **Information Literacy**
- **Media Literacy**
- **ICT (Information, Communications and Technology) Literacy**

Life and Career Skills

Today's life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills, such as:

- **Flexibility and Adaptability**
- **Initiative and Self-Direction**
- **Social and Cross-Cultural Skills**
- **Productivity and Accountability**
- **Leadership and Responsibility**

Constantly Changing

- The only constant with regard to technology in today's society is CHANGE!
- L-S has had a Technology Plan since the 90s, has been required by state since 1996
- L-S Technology Plan

L-S Distant Past 1986-2004

- The “Old Building” - 300 computers 20 printers.
- Approximately 300 accounts - Computer classes, one Art class. Other classes sign up for departmental lab for occasional activities.
- Library acquires an Interactive White Board through a grant 2002
- 1 Network Admin, 1 Computer Technician, 0.5 FTE Instructional Tech Specialist, 0.5 Educational Technology Coordinator, 0.25 database manager

Recent Past -The “New Building” 2004-2006

- New infrastructure- Fiber and wireless network
- 1200 computers(desktops / laptops)
- 1800 plus users (students & staff)
- 7 departmental desktop labs
- 11 mobile labs- 165 laptops
- Library, media classrooms, publications
- 300% increase in “hardware” and 500% increase in users-
0% increase in staff to support for teachers / students,
curriculum, and maintenance of equipment and
infrastructure

Educational Technology 2006

Create

Communicate



Investigate

Teaching & Learning

- Beyond paper and pencil
- As always teachers - Inspire, Motivate, Engage, Energize
- Collaboration
- Incorporate information relevant to the student's life
- On-going Professional Development is critical

A tool for all students

- Computer - Programming, Creative Computing, Web Publishing, JAVA programming
- Counseling - Naviance, iPASS
- English/History- Research, Presentations, Journals, Wikis, Blogs, student ipad pilot program
- FATA - Media, Film, Digital Photography, Songwriting, Architectural Design
- Science/Math - Web based simulations, NASA, Interactive Physics, Virtual Labs, Interactive White Board, Topics Courses, Presentations, Java Applets
- Language - Web based translations, presentations, interactive white boards, video conferencing
- Library - How to research effectively using on-line databases-Using Epson Brightlink-creates interactive whiteboard environment
- Special Education - Assistive technologies -speech to text, audio books, ebooks, use of mobile devices
- Wellness - Project based work, health information - up to date information
- All disciplines - Wikis, Web sites - learning curve and time investment for teachers

Courses which require computers

Courses which rely upon computers for each class session

- Creative Computing
- Intro to Programming
- Game Programming
- JAVA Programming
- Flash: Web Animation
- The Art and Craft of Video Production
- Architectural Design
- Multimedia Music
- Topics in Advanced Math
- Topics in Algebra II
- Digital Imaging
- Songwriting
- Digital Photography
- Web Publishing

Devices accessing the L-S Network

DHCP Service is: Running

Start Time: Oct 17, 2012 12:00:20 PM EDT

Static Maps: 1

Current DHCP Clients: 1159 active leases, 1282 expired

Last Client Database Update: Oct 18, 2012 7:40:17 AM EDT

In less than a 24 hour period - 2441 unique devices have accessed the network

L-S has approximately 1600 students and 250 staff members

Bring Your Own Device(s)

- L-S has always been a BYOD environment
- Between 2010-2012 the mobile device explosion has been exponential
- Crippling the inadequate backbone and wi-fi network
- Impacting productivity for students and staff

Computer Replacement Information

Less than 3 years old

Main Computer Lab
Universal Computer Lab
FATA Lab
Library
Language Lab
Humanities Lab
Science Lab
Media Lab
20 Faculty/Admin devices
12 Special Education computers
1 Math student laptop cart(15 devices)
1 Wellness student laptop cart(15 devices)

Most of this equipment was acquired through stabilization funds - 150K

3-5 years old

50% Staff laptops



**Approximately 15% of teachers
use their own computers**

3 - 5 years old

- Math Lab
- Administrators
- Administrative support
- Forum - School newspaper
- Faculty

Student Related Equipment

- Nine years old
 - Special Ed-classrooms
 - Academic Support Center
 - Student Laptop Carts (9 carts)-depts
 - Applied Technology
 - Music dept
- Aging student servers for 9,10,11,12 (had to combine servers due to financial issues)
- Tablets? - Not feasible until robust network/
bandwidth is in place

Immediate Needs

- Network Infrastructure- Backbone, Wi-fi (needs to include installation, reconfiguration, cabling for new access points-one per classroom-library, gyms, cafe, lecture hall, auditorium) - Needs to follow formal bid process - Estimate 500K (Timeline important since most work would have to be completed July-Aug)*
- Increase Bandwidth - Currently 40-50 Mbps - (TowerStream, FIOS, Comcast)
 - **Annual Operating Costs = \$9,480** *E-rate discount (without discount=\$15,240)
 - **Projected to Increase with renovated network infrastructure**
- Student servers, Admin server, Password server, Student desktops / laptops, teacher laptops - 140K*

***Included in Capital Plan**

The Future?

- What needs to happen in order for L-S to support an educational environment which meets the needs of students and teachers in the year 2013 and beyond?
- Replacement of backbone network infrastructure - hardware, reconfiguration of the flat network to a Virtual LAN(allowing for better traffic control of bandwidth)
- New wi-fi network layered on top of the backbone
- Increased bandwidth to support the new network and multiple devices per person
- Professional development for teachers to make the best use of the new tools available (Requires time and staffing)
- Once a robust network and increased bandwidth is in place - investigate Cloud solutions for collaboration and storage
- *Dedicated funds should be available annually for technology developments*

Create, Investigate, Collaborate, Communicate!

Conor
Hanover's

Modern European
History Class

2 Years ago Conor participated in the Operation iPad workshop with 20 other staff members

In all of his classes there are 5 ipads available for sharing in groups during class time

Using iPads & Wikis

Conor has 5 iPads to use in his classes to explore the educational uses. The devices are shared and the class is arranged in groups. With the use of the class wikis, the groups record their work in class and it is available for on-line access when they are at home. This is a helpful tool for reviewing the material and preparing for tests.

There is a dedicated Access Point (wi-fi base station) in the classroom

Sharing - Thoughts, ideas and devices

Debt Exclusion Request

Instructional Technology	Capital Need FY '14
Network/Wifi	500K
Servers	19K
Special Ed student	30K
Mobile Labs(3)	45K
Applied Tech	26K
Faculty Laptop (yr 1)	20K
TOTAL	640K

Credits/Resources

- themacoutlet.com
- apple.com
- ged578.pbworks.com
- http://en.wikipedia.org/wiki/Virtual_LAN
- etoiledancewear.com
- <http://desireestanley.files.wordpress.com/2009/03/blue-bird-missouri.jpg>
- http://profiles.doe.mass.edu/state_report/technology.aspx?mode=&year=2008&orderBy=&filterBy=
- School Days - Cedarmount Kids- 100 Sing along Songs
- The Way we Were - Barbra Streisand
- <http://www.lsrhs.net/TechHelp/newpage/information/info.html>
- "Ain't No Stoppin' Us Now" [McFadden & Whitehead](#).
- Conor Hanover's block 2 Modern European History class