Technology and
The Next Generation Learning Standards

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engage ny
Agenda

• Overview of Connections between Standards and Technology
• Keyboarding Instruction
• District Spotlight: Akron CSD
• Leadership: Implementing Personalized Learning with Technology
• Wrap Up and Questions
Technology in NYS Schools

- Technology is a powerful tool, and should be utilized in everyday instruction, across all subjects, to enhance teaching and learning.
Takeaways from this Morning

• The “What” and the “How” (and how technology fits in)

• Follow a student
  – Voice
  – Engagement
  – Individual needs
  – Belonging

• Preparing students for jobs that don’t yet exist

• Personalized, differentiated, adapted, culturally & linguistically relevant, and context-based
Technology and Mathematics

Changing expectations for mathematics achievement

To prepare students for the changes in the way we live and work, and to be sure that our education system keeps pace with what it means to be mathematically literate and what it means to **collaboratively problem solve**, we need a different approach to daily teaching and learning. We need content-rich standards that will serve as a platform for advancing children’s **21st-century** mathematical skills — their abstract reasoning, their collaboration skills, their ability to **learn from peers** and through technology, and their flexibility as a learner in a dynamic learning environment.
Technology and Mathematics

• Today’s children live in a society where
  – many of their peers are from diverse backgrounds and speak different languages
  – technology is ubiquitous and central to daily life

• They will enter a workforce and economy that demands
  – critical thinking skills
  – strong communication and social skills
  – significant attention to STEM
Standards for Mathematical Practice

5. Use appropriate tools strategically.

- Mathematically proficient students consider the available tools when solving a mathematical problem.
- Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations.
  - Analyze graphs of functions and solutions generated using a graphing calculator
  - Technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data.
  - Identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems.
  - Use technological tools to explore and deepen their understanding of concepts.
Technology in MS Math Standards

NY-7.G Geometry

• **Draw, construct, and describe geometrical figures and describe the relationships between them.**

• **2. Draw triangles when given measures of angles and/or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.**
  
  – **Note:** Create triangles through the use of freehand drawings, materials (scaffolds may include: pipe cleaners, Legos®, and toothpicks), rulers, protractors, and/or technology.

NY-8.G Geometry

• **Understand congruence and similarity using physical models, transparencies, or geometry software.**
High School – Modeling with Technology

• When making mathematical models, technology is valuable for varying assumptions, exploring consequences, and comparing predictions with data.

• Diagrams of various kinds, spreadsheets and other technology, and algebra are powerful tools for understanding and solving problems drawn from different types of real-world situations.

• Graphing utilities, spreadsheets, computer algebra systems, and dynamic geometry software are powerful tools that can be used to model purely mathematical phenomena (e.g., the behavior of polynomials) as well as physical phenomena.
Technology in HS Math Standards

**Al-A.REI  Algebra - Reasoning with Equations and Inequalities**
- Given the equations $y = f(x)$ and $y = g(x)$:
- ii) find the solutions approximately using technology to graph the functions or make tables of values

**Al-F.IF  Algebra - Interpreting Functions**
- 7. Graph functions and show key features of the graph by hand and by using technology where appropriate. ★

**Al-F.BF  Algebra - Building Functions**
- 3a. Using $f(x) + k$, $k f(x)$, and $f(x + k)$:
- iv) use technology to experiment with cases and explore the effects on the graph.

**Al-S.ID  Statistics and Probability**
- 8. Calculate (using technology) and interpret the correlation coefficient of a linear fit.
Technology in HS Geometry

• Use of a variety of tools and methods for construction is encouraged.
  – Includes dynamic geometric software

• Dynamic geometry environments
  – Provide students with experimental and modeling tools that allow them to investigate geometric phenomena using visualization, reasoning, and geometric modeling to solve problems
  – Allow students to create geometric models and ideas to solve not only problems in mathematics, but in other disciplines or everyday situations.
Literacy for History/SS, Science, and Technical Subjects

What is Literacy?

A high degree of proficiency in literacy is essential as students attempt to acquire and build knowledge in each of the content areas. Students must be able to read social studies textbooks, analyze historical documents, follow scientific procedures, and discuss complex written problems, as well as respond to issues in their subject area content through speaking, writing, and **crafting digital responses**.
What is Literacy?

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• In all technical subjects, students encounter charts, graphs, diagrams, maps, and data sets presented in a variety of media. They must be able to understand and analyze these data in a variety of formats (Reading Standard 7).
Reading Standard 7: H/SS

• 6-8: Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

• 9-10: Integrate and evaluate visual and technical information (e.g., in research data, charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

• 11-12: Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.
Reading Standard 7: ST

- 6-8: Identify and match scientific or technical information presented as text with a version of that information presented visually (e.g., in a flowchart, diagram, model, graph, or table).

- 9-10: Translate scientific or technical information expressed as written text into visual form (e.g., a table or chart), and translate information expressed visually or mathematically (e.g., in an equation) into words.

- 11-12: Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
Range of Text Types

• Informational Text in both print and digital sources

• Discipline-specific material, including
  – Blogs/websites
  – Texts written by members of a discipline community for others in that community, such as articles appearing in professional journals and on the websites of professional organizations
The standards for writing require students to use technology to produce and publish their analyses (Writing Standard 6).

Standard 6: Gather relevant information from multiple sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
ELA Introduction

The rate at which knowledge is generating and shared today, often via technology, is unprecedented in human history... Today’s children must also become adults who are able to communicate and navigate an increasingly interconnected society—one in which literacy skills are routinely called upon. In other words, all students in NYS classrooms must develop advanced literacies. Advanced literacies denote a set of skills and competencies that enable communication, spoken and written, in increasingly diverse ways and with increasingly diverse audiences.
ELA Introduction: Additional Guidelines

• The development of all literacy skills requires extensive opportunities to practice, especially with authentic texts and real-life communication situations, including authentic social, cultural, professional, and academic contexts.

• The standards address a student’s ability to read, listen to, and view creative works in various genres and across various cultures. In addition to acquiring knowledge about the history, forms, and artistic craft of the works studied, students are expected to develop informed written, spoken, visual, and digital responses.

• The word “text” should be construed as encompassing far more than printed material. Text may also refer to speech, graphics, visual art, digital representations, video, and other visual and audio depictions of ideas, concepts, and experiences.
ELA Introduction: Additional Guidelines

• Students should understand and be able to observe the differences between the form and function of the conventions of academic English and features of informal written communication, speech, and electronic communication, with the goal of furthering their capacity to communicate with broader audiences using both conversational and academic English.

• The standards include frequent references to digital media. Students must achieve fluency and develop skilled practice in the use of current media, and, given the pace of technological development, they must be able to adapt quickly to new media as they develop.
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Technology in the Reading Standards

Range of Student Reading Experiences

• **Informational Text:** Both print and digital sources
Reading Standard 7 in 6-8

- **6R7**: Compare and contrast how different formats, including print and digital media, contribute to the understanding of a subject. (RI&RL)

- **7R7**: Compare and contrast a written text with audio, filmed, staged, or digital versions in order to analyze the effects of techniques unique to each media and each format’s portrayal of a subject. (RI&RL)

- **8R7**: Evaluate the advantages and disadvantages of using different media-- text, audio, video, stage, or digital-- to present a particular subject or idea and analyze the extent to which a production remains faithful to or departs from the written text. (RI&RL)
Technology in the Writing Standards

Lifelong Practices of Writers:

• Writers write often and widely in a variety of formats, using print and digital resources and tools.
Technology in the Writing Standards

• Grades PreK–1:
  – Begin to learn about how technology and digital tools for writing can increase learning and communication (e.g., use technology to write, draw, and explore concepts)

• Grades 2-12:
  – Learn about various tools (print and digital) to produce, share, and publish writing
  – As part of their writing development, students should continue to learn about how technology and digital tools for writing can increase learning and communication
Technology in the Writing Standards

- 9-10 and 11-12 W7:
  - Gather relevant information from multiple sources, using advanced searches effectively
Technology in the Speaking and Listening Standards

Standard 5: Make strategic use of digital media and visual displays to express information and enhance understanding of presentations.

Include digital media and/or visual displays in presentations to

- 2SL5: clarify or support ideas, thoughts, and feelings
- 3SL5: emphasize certain facts or details
- 4SL5: emphasize central ideas or themes
- 5SL5: emphasize and enhance central ideas or themes.
- 6SL5: clarify information and emphasize and enhance central ideas or themes
- 7SL5: clarify claims and findings and emphasize salient points
- 8SL5: clarify information, strengthen claims and evidence, and add elements of interest to engage the audience.
- 9-10 and 11-12 SL5: enhance understanding of findings, reasoning, and evidence, and to add elements of interest to engage the audience.
Keyboarding

Guidance: Keyboarding Instruction

The University of the State of New York
The State Education Department

Guidance:
Keyboarding Instruction
2017

Keyboarding Instruction

As the use of technology for teaching, learning, and assessment becomes more prevalent in New York State schools, and as teachers and leaders continue to make decisions that ensure their students are receiving a quality, 21st Century education, the topic of keyboarding instruction will and must emerge as a focus area.

Keyboarding, the ability to operate a keyboard efficiently while typing, is an important skill that allows students to write fluently and communicate more effectively, and is critical to success in school, college, and careers in the 21st Century.
## Keyboarding

<table>
<thead>
<tr>
<th>Grade(s)</th>
<th>Keyboarding Instruction Expectations in NYS Next Generation English Language Arts Learning Standards</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PreK</td>
<td>Students should begin to explore keyboards.</td>
<td>12</td>
</tr>
<tr>
<td>K</td>
<td>Students should explore keyboards.</td>
<td>18</td>
</tr>
<tr>
<td>1</td>
<td>Students should continue to explore keyboards.</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>Students should be introduced to keyboarding.</td>
<td>32</td>
</tr>
<tr>
<td>3 and 4</td>
<td>Students should receive instruction in keyboarding, with a focus on technique over speed.</td>
<td>39, 46</td>
</tr>
<tr>
<td>5 and 6</td>
<td>Students should continue to improve keyboarding skills, with a focus on increasing speed as well as accuracy.</td>
<td>53, 60</td>
</tr>
<tr>
<td>7, 8, 9/10</td>
<td>Students should continue to improve keyboarding skills to increase speed and accuracy.</td>
<td>68, 74, 83</td>
</tr>
<tr>
<td>11/12</td>
<td>Students should demonstrate proficient keyboarding skills.</td>
<td>90</td>
</tr>
</tbody>
</table>
# Keyboarding

## Keyboarding Programs Utilized by NYS Schools

<table>
<thead>
<tr>
<th>Rank</th>
<th>K-12</th>
<th>K-5</th>
<th>6-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Typing.com®</td>
<td>TypingClub®</td>
<td>Typing.com®</td>
</tr>
<tr>
<td>2</td>
<td>TypingClub®</td>
<td>Typing.com®</td>
<td>Typing Instructor®</td>
</tr>
<tr>
<td>3</td>
<td>Sunburst Digital Type to</td>
<td>Sunburst Digital Type to</td>
<td>TypingClub®</td>
</tr>
<tr>
<td></td>
<td>Learn - K-12 Keyboarding</td>
<td>Learn - K-12 Keyboarding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curriculum®</td>
<td>Curriculum®</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Typing Instructor®</td>
<td>BBC Bitesize - Dance Mat</td>
<td>EduTyping®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Typing®</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Keyboarding Without Tears</td>
<td>Keyboarding Without</td>
<td>Mavis Beacon®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tears®</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>BBC Bitesize - Dance Mat</td>
<td>Typing Instructor®</td>
<td>MicroType 5®</td>
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<tr>
<td></td>
<td>Typing®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>EduTyping®</td>
<td>Mavis Beacon®</td>
<td>Sunburst Digital Type to</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Learn - K-12 Keyboarding</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Curriculum®</td>
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<tr>
<td>8</td>
<td>Mavis Beacon®</td>
<td>EduTyping®</td>
<td>TypingTest.com®</td>
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<tr>
<td>9</td>
<td>ABCya®</td>
<td>ABCya®</td>
<td>Keyboarding Without Tears</td>
</tr>
<tr>
<td>10</td>
<td>EasyTech®</td>
<td>EasyTech®</td>
<td>ABCya®</td>
</tr>
</tbody>
</table>
Is Technology the Answer?
SAMR Model

**THE SAMR MODEL**

**S**  SUBSTITUTION  Technology acts as a direct substitute, with no functional change

**A**  AUGMENTATION  Technology acts as a direct substitute, with functional improvement

**M**  MODIFICATION  Technology allows for significant task redesign

**R**  REDEFINITION  Technology allows for the creation of new tasks, previously inconceivable

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**Dr. Ruben R. Puentedura**

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# Gradual Release of 1:1 Chromebooks at Akron CSD

<table>
<thead>
<tr>
<th>Year</th>
<th>Elementary Grades</th>
<th>Middle School Grades</th>
<th>High School Grades</th>
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</thead>
<tbody>
<tr>
<td>2016-2017</td>
<td>K, 5, 7, 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017-2018</td>
<td>K, 1, 5*, 7</td>
<td>6*, 7</td>
<td>9</td>
</tr>
<tr>
<td>2018-2019</td>
<td>K, 1, 2, 3, 5*</td>
<td>6*, 7*, 8</td>
<td>9, 10, 11</td>
</tr>
<tr>
<td>2019-2020</td>
<td>PreK-12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* denotes rolling release
Professional Learning Communities

- Technology Department
- Technology Integration Specialist(s) (BOCES)
- Instructional Coaches*
- Teacher Leaders
- Administrators
**Assistive Technology** is defined as: Any item, piece of equipment or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of children with disabilities. IDEA (Individuals with Disabilities Education Act, 2004)

**Low Level**
- Magnifying glass, highlighters, pencil grips or calculators

**High Level**
- Screen readers (zoom devices), contrast, special keyboards, FM systems, speech to text apps, other various apps/software
App-y Hour Specials

**App-y Hour Specials**

*Wednesday, Friday, 11-3 & Tuesday, 11-3 - 6th Period, Caine Center, NYC*

**Padlet**
- A free, game-based learning platform
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: W. O'Malley & Ann Lewis

**Kahoot!**
- A self-paced game that'll give you your own quizzes to create, share, and experience together
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**Seesaw**
- Student driven digital portfolio and simple parent communication
- Created by: Ms. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**Quizizz**
- A free, simple tool that lets teachers collaborate 
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**Quizlet**
- A powerful, simple tool that lets teachers collect real-time formative assessment without student devices
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**Study Island**
- Practice and Placement Assessments for Math, ELA, Science & Social Studies
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**Exceeds**
- A free, simple tool that lets teachers collect real-time formative assessment without student devices
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**QR Codes**
- Qr codes for “Quick Responses”, which refers to the instant access to the information hidden in the code
- Created by: Ms. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**Kami**
- With Kami tools, you can annotate, markup, and collaborate on your PDF, document, or image files
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**Quizlet Live**
- Quizlet Live makes simple learning tools that let you study anything. Start learning today with flashcards, games and learning tools
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**MobyMax**
- A free testing and messaging app that helps teachers, parents, & students communicate efficiently
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**Remind**
- A free text messaging app that helps teachers, parents, & students communicate efficiently
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**Episod**
- A free, simple tool that lets teachers collect real-time formative assessment without student devices
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**Planbook**
- A free text messaging app that helps teachers, parents, & students communicate efficiently
- Created by: Mrs. Sweeney & Mrs. Borensztein
- Aimed by: Ann Lewis

**NYS ED engage ny.gov**
Several Teachers’ Responses

Positive Outcomes of the Change…

• Organization is no longer an issue
• No more “forgotten” homework at home
• No need for a pencil/pen
• No need to decipher handwriting
• Absent/transfer students can get caught up faster
• Instant communication to students
• Increased collaboration
• Information at their fingertips
Personalized Learning

All about EmPOWERment

- Teachers
- Administrators
- Parents
- Students
Personalized Learning
Personalized Learning

The Golden Circle

WHY
HOW
WHAT
Personalized Learning

“Personalized learning is tailoring learning for each student’s strengths, needs and interests, including enabling student voice and choice in what, how, when, and where they learn, to provide flexibility and supports to ensure mastery at the highest standards possible.”

Mean What You Say: Integrating Personalized, Blended and Competency Education Patrick, Kennedy, Powell, iNACOL 2013
Personalized Learning

Personalization vs. Differentiation vs. Individualization
Personalized Learning

People Make It Happen

• Otselic Valley - 1:1, Flipped
  – Math

• Central Valley - Curriculum, 1:1
  – Writing, Math

• Frontier - Curriculum, 1:1, Academies
Personalized Learning

“Pedagogy is the driver. Technology is the accelerator.”

- Michael Fullan
Personalized Learning

Reflection

• State Testing
  – Curriculum check

• Benchmarks
  – 3-4 times a year
  – Spiral learning
  – Growth

• Formative
  – Where in any given point in time…
Personalized Learning

WAYS TO PERSONALIZE

1-1 TUTORING
PROJECT-BASED LEARNING
MASTERY-BASED PROGRESSION
BLENDING LEARNING

PERSONALIZED LEARNING
Personalized Learning

“If you assign a project and get back 30 of the exact same thing, that’s not a project, that’s a recipe.” -Chris Lehmann
Personalized Learning

Gradual Release of Responsibility

• I Do - Modeling, Direct Instruction
• We Do - Guided Practice
• You Do Together - Collaboration
• You Do - Independent Practice
Personalized Learning

Success

What people think.

Success

Reality.
Personalized Learning

Education, for most people, means trying to lead the child to resemble the typical adult of his society... But for me, education means making creators... You have to make inventors, innovators, not conformists.

(Jean Piaget)

izquotes.com
Personalized Learning

TEACHERS WHO ARE CRAZY ENOUGH TO THINK THEY CAN CHANGE THE WORLD, USUALLY DO.
Questions?
Technology Conference

- May 24, 2018
- Albany City Center
- Free for educators
- Strands:
  - ELLs/MLLs
  - Students with Disabilities
  - Next Gen Learning Standards
  - Data Driven Decision Making
  - Culturally-Responsive Learning Environments
  - Personalized Learning

www.nysed.gov/edtech