Highway to Our Future Technology for Utah Schools – May 2013

Utah State Office of Education • Martell Menlove • State Superintendent of Public Instruction



Technology Standards approved by the Utah State Board of Education January 12, 2012

Computers in Schools

• Total # of Students: 600,985 Total # of Computers: 192,064

• Technology Standards

1:1 student to computing device ratio to support high quality instruction and assessment in preparing students to be college and career ready

- SAGE Summative Assessments
 3:1 student/computing device ratio
 All schools have achieved this due to 100% computer-based CRTs
- **SAGE Interim Assessments 2:1** student/computing device ratio for fall and winter administrations
- SAGE Formative and Classroom Instructional Resources 1:1 student/computing device ratio



Computers in Schools

Total Number of Students - 600,985

Total Number of Computers: All Types and Ages - **192,064**

Current Computer Infrastructure in Utah School							
Total Number of Desktop Computers which are <u>0-2 years old</u>	Total Number of Desktop Computers which are <u>3-4 years old</u>	Total Number of Desktop Computers which are <u>5-6 years old</u>	Total Number of Desktop Computers which are <u>older</u> <u>than</u> <u>6 years</u>	Total Number of Desktop computers - All Ages			
40,547	34,782	36,162	22,743	134,234			
	-	-		-			
Total Number of	Total Number	Total Number	Total Number of	Total Number			
Laptops,	of Laptops,	of Laptops,	Laptops,	of Laptops,			
Netbooks	Netbooks and	Netbooks and	Netbooks and	Netbooks and			
and Tablets	Tablets which	Tablets which	Tablets which	Tablets - All			
which are	are	are	are <u>older than</u>	Ages			
<u>0-2 years old</u>	<u>3-4 years old</u>	<u>5-6 years old</u>	<u>6 years</u>				
31,831	14,808	7,454	3,737	57,830			

Computers in Schools

	Number of				Number of		
	Schools with a		Number of		Schools with a		
	1:1 Student to		Schools with a 2:1		4:1 or higher		Percentage of
	Computer	Percentage	or 3:1 Student to	Percentage	Student to	Percentage	Computers 5
District	Ratio	of Schools	Computer Ratio	of Schools	Computer Ratio	of Schools	vears or older
Alpine School District	1	1%	19	36%	53	73%	28%
Beaver School District	2	40%	3	60%	0	0%	34%
Box Elder School District	3	13%	12	52%	8	35%	30%
Cache School District	1	4%	17	68%	7	28%	22%
Carbon School District	3	30%	7	70%	0	0%	22%
Daggett School District	3	100%	0	0%	0	0%	10%
Davis School District	10	12%	46	55%	27	33%	23%
Duchesne School District	2	15%	9	64%	3	21%	58%
Emery School District	3	30%	5	50%	2	20%	31%
Garfield School District	7	78%	2	22%	0	0%	35%
Grand School District	2	50%	1	25%	1	25%	30%
Granite School District	5	6%	61	70%	21	24%	62%
Iron School District	4	24%	11	65%	2	11%	39%
Jordan School District	9	17%	20	38%	24	45%	40%
Juab School District	2	40%	3	60%	0	0%	70%
Kane School District	6	86%	1	14%	0	0%	88%
Millard School District	5	50%	4	40%	1	10%	38%
Morgan School District	0	0%	2	50%	2	50%	65%
Nebo School District	2	4%	12	29%	28	67%	2%
North Sanpete School District	0	0%	6	100%	0	0%	37%
North Summit School District	3	100%	0	0%	0	0%	22%
Park City School District	4	50%	4	50%	0	0%	10%
Piute School District	3	60%	0	0%	2	40%	37%
Rich School District	3	75%	1	25%	0	0%	15%
San Juan School District	8	73%	3	26%	1	1%	29%
Sevier School District		67%	4	33%	0	0%	51%
South Sanpete School District	2	29%	5	61%	0	0%	26%
South Summit School District	1	34%	2	66%	0	0%	20%
Tintic School District	6	100%	0	0%	0	0%	31%
Tooele School District	18	72%	7	28%	0	0%	51%
Uintah School District	4	31%	7	54%	2	15%	23%
Wasatch School District	4	50%	4	50%	0	0%	22%
Washington School District	16	38%	22	52%	4	10%	74%
Wayne School District	3	75%	1	25%	0	0%	40%
Weber School District	32	74%	11	26%	0	0%	36%
Salt Lake School District	2	6%	29	81%	5	13%	24%
Ogden School District	9	45%	11	55%	0	0%	23%
Provo School District	14	74%	5	26%	0	0%	48%
Logan School District	3	33%	5	56%	1	12%	36%
Murray School District	2	17%	Z	17%	8	56%	45%
USDB Converse School District	1	17%	4	56%	1	17%	88%
Canyons School District	9	22%	31	77%	1	1%	Not Available
Charter Schools		21%	11	29%	19	50%	23%
(38 of 92 Reporting)							

Future Computer Needs

200,000 computers will be needed to replace aging computers and to maintain our current 3:1 ratio of students to computers

	Year 1	Year 2	Year 3			Annual Cost
Three- Year Rotation Cycle	66,666	66,666	66,666			\$250 Device- \$16,666,500 \$500 Device- \$33,333,000 \$1000 Device - \$66,666,000
	Year 1	Year 2	Year 3	Year 4		
Four-Year Rotation Cycle	50,000	50,000	50,000	50,000		\$250 Device- \$12,500,00 \$500 Device- \$25,000,000 \$1000 Device - \$50,000,000
	Year 1	Year 2	Year 3	Year 4	Year 5	
Five-Year Rotation Cycle	40,000	40,000	40,000	40,000	40,000	\$250 Device- \$10,000,000 \$500 Device- \$20,000,000 \$1000 Device - \$40,000,000

300,000 computers will be needed to replace aging computers and reduce our ratio of students to computers to 2:1

	Year 1	Year 2	Year 3			Annual Cost
Three- Year Rotation Cycle	100,000	100,000	100,000			\$250 Device- \$25,000,000 \$500 Device- \$50,000,000 \$1000 Device - \$100,000,000
	Year 1	Year 2	Year 3	Year 4		
Four-Year Rotation Cycle	75,000	75,000	75,000	75,000		\$250 Device- \$18,750,000 \$500 Device- \$37,500,000 \$1000 Device - \$75,000,000
	Year 1	Year 2	Year 3	Year 4	Year 5	
Five-Year Rotation Cycle	60,000	60,000	60,000	60,000	60,000	\$250 Device- \$15,000,000 \$500 Device- \$30,000,000 \$1000 Device - \$60,000,000

Future Computer Needs

600,000 computers will be needed to replace aging computers and reduce our ratio of students to computers to 1:1

	Year 1	Year 2	Year 3			Annual Cost
Three- Year Rotation Cycle	200,000	200,000	200,000			\$250 Device- \$50,000,000 \$500 Device- \$100,000,000 \$1000 Device - \$200,000,000
	Year 1	Year 2	Year 3	Year 4		
Four-Year Rotation Cycle	150,000	150,000	150,000	150,000		\$250 Device- \$37,500,00 \$500 Device- \$75,000,000 \$1000 Device - \$150,000,000
	Year 1	Year 2	Year 3	Year 4	Year 5	
Five-Year Rotation Cycle	120,000	120,000	120,000	120,000	120,000	\$250 Device- \$30,000,000 \$500 Device- \$60,000,000 \$1000 Device - \$120,000,000



Network Infrastructure Needs

Internal School Networks

\$50,000 - Average Cost to Install Wireless Internet Capacity in a school building (approx. 1000 Students)

There are currently 1072 school buildings in Utah. A significant number of these will require wireless network upgrades.

60% = \$32,150,000 70% = \$37,500,000 80% = \$42,900,000 90% = \$48,250,000

School/District Internet Connections

Currently all schools in Utah have a 1GB Internet Connection with a few exceptions. The following districts have increased or will increase capacity:

Davis: 2GB to each school installed

Canyons and Weber Districts will increase to 2GB to each school within the next 12 months

Utah Education Network (UEN) also intends to increase capacity to the Granite, Jordan, Nebo and Alpine District offices this year.

Next year UEN will look for a solution for the Washington District Office

Provo School District has secured some dark fiber to UVU and UEN will work with them to turn up 10GB to their district office within the next twelve months.

<u>UEN Internet Backbone</u>

UEN currently has a 10GB backbone from UEN's USU-Logan PoP to UEN's Richfield PoP located at the State of Utah's Richfield Data Center. As part of the next round of upgrades UEN will extend 10GB capacity to St.George/Washington County.

UEN completed a circuit from the Uinta Basin to Price via Nine Mile Canyon which will increase reliability and provide a level of increased capacity to each of these regions.

Security and Content Filtering

UEN operates content-control software and hardware on behalf of Utah K-12 public schools and public libraries to limit child exposure to harmful content such as violence and pornography.

On and off campus security and content filtering is implemented by schools providing student devices for school and home use.

Assessment Support Plan

HB 2 Computer Adaptive Testing Funds: \$6,600,000.00

- Application to distribute funds under HB 2 and Board Rule R277-408-3-C was sent to districts and charter schools in April, 2013
- Preliminary funding allocations have been created and verified
- Applications will be due June 7, 2013 from all districts and charter schools
- Technology specifications for 2013 have been provided to districts and charter school
- Application requires each LEA to provide matching funds, complete technology survey and complete a broadband speed test at each school

SAGE Implementation Support

- Information presentations have been made to numerous groups and communities
- Monthly webinars are being conducted
- Monthly newsletters and other timely information are distributed to multiple lists and posted on the USOE Assessment web site
- The following technical requirements have been shared with districts and charter schools:
 - Low bandwidth demand
 - Support for computers and operating systems for 10 years
 - No caching servers, special hardware or software, other than secure browser (no need for personnel to be tech-savvy to download the Secure Browser)
 - SAGE will work on the following systems:

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Windows: XP (12 years old)
Mac OSX: 10.4 (7 years old)
Linux
K12LTSP 4.0 (8 years old)
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Ubuntu 9 (3 years old)

• SAGE will work on the following hardware:

Desktops

Laptops

Tablets

iPad and Android devices Chromebooks

SmartSchool Program Update - 2012

Cost

- \$1600/student and teacher
- \$3,000,000 appropriated
 - \$120,000 for evaluation: SUU under the direction of Dr. Deb Hill
 - o \$2,880,000 for program
- 1800 persons (1600 students; 200 Administration/Faculty/Support Staff)

Each School

- Updated wireless network
- Computer Server
- Teacher professional development

Each Classroom

- Large screen display
- Classroom sound system

Each Teacher

- Classroom computer/laptop
- iPad

Each Student

- iPad and case
- •

Gunnison Valley Elementary School

- All grades and classes are using iPads, classroom electronic tools and equipment
- iAssignment application allows students to turn in assignments and teachers can push out assignments without email
- Third grade has made Keynote presentations about an animal, researched information, found pictures, etc., and put the information into their presentations
- Teachers record student's reading, and then students can listen to themselves. This has improved student reading skills
- Students use their devices to go to study island or to enhance learning
- Teachers feel the devices have increased student excitement to learn

Dixon Middle School

- Students and teachers use devices daily
- Amazing Problem Solving Activities for students File sharing, conversions, media projects, and the daily navigation of the iPad, Apple TVs, and Computers are exceptional experiences for students
- Increased student engagement rates in classrooms
- Students fully participate by completing assignments, creating presentations on their iPads, and taking online assessments
- The student leadership team regularly creates movies to help students learn rules and become more involved with school activities
- Science and Social Studies teachers help students use presentation software on both iPads and computers to deepen understanding of a concept they're learning
- Choir and band students use music applications for note recognition, iBooks for music, and create their own music using technology

North Sevier High School

- Students are using the technologies in very productive ways in the classrooms.
- Devices and equipment have resulted in improved classroom instruction
- Teachers are creating more dynamic lessons and presentations because they have the presentation tools in their classrooms
- Teachers are able to give more constructive feedback on student work since the majority of assignments are submitted electronically
- Student engagement has dramatically increased with the increased technology in the school
- Student productivity has increased. Teachers are reporting that more students are completing more assignments and projects

SmartSchool Program Update - 2013

SB 284

- Appropriates \$2,400,000 to continue this program
- GOED (Governors Office on Economic Development) through an RFP process will select a vendor to implement this program in selected schools.
 - o RFP to be released on May 10, 2013
 - o RFP will close near the end of May
 - Independent Evaluating Committee (includes 3 members of the state board of education) will review applications and select a vendor in June 2013.
 - The vendor contract will be approved by the GOED Board of Directors in June 2013
- The state board of education will select schools to participate in this program
 - Board Rule R277-617 has been amended
 - The application for schools to apply to participate in this program will be made available by May 15, 2013
 - Application will be due back to the USOE on June 1, 2013
 - USOE will screen the applicants and will recommend schools to participate in the program.
 - Selected schools will notified by June 30, 2013
 - NEW: Participating schools are required to provide matching funds
 - The Board and the education technology provider shall evaluate the Program

The program will provide the following to selected schools:

- Updated wireless network
- Computer Server
- Teacher professional development
- Large screen display in each classroom
- Classroom sound system
- Each teacher will receive a classroom computer or laptop
- Mobile device (i.e. tablet) for each teacher
- Mobile device (i.e. tablet) and case for each student

Technology Implementation – Examples of Best Practices

"We need technology in every classroom and in every student and teacher's hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world."

- <u>David Warlick</u>

Examples of Best Practices

- Students use early learning software to access reading and other instruction in self-paced environments (e.g., English and Spanish eBooks, Imagine Learning, iReady, Reading Horizons, Raz-Kids, eBooks).
 (Alpine, Box Elder, Granite, Kane, Logan, Nebo, Park City, Salt Lake)
- Students access applications and websites (e.g., iMovie, Inspiration Maps, Nearpod, Notability, Thinglink, Storykit, QR Codes, VoiceThread, Videolicious, Sliderocket, Glogster, Oneeko, Google Apps) on their personal mobile computing device (one-to-one) to individually engage in self-directed, authentic and inquiry-based tasks. (Granite, Morgan, Nebo, Open High School)
- Special education students creating their own iBooks and apps as a part of instruction. Applications and online tools provide students with disabilities access to instructional tools (e.g., Tom the Cat, MP3 reading support). (Alpine, Iron)
- Laptops, projectors and document cameras used to facilitate math, science and reading instruction (Cache, Davis, Emery, Tooele, Uintah, Wasatch).
- Students use personal mobile computing devices (one-to-one) to practice writing, receiving immediate feedback on writing performance. (Cache, Logan)
- Students use Internet resources to develop online reports and public pages, integrating social studies, language arts and library media curriculum. (Canyons)
- CTE students access supplemental curriculum for high-performing students, online curriculum for struggling students. Students move through curriculum at their own pace. (Canyons)

- Kindergarten students use online programs for math and language arts instruction. First grade students use online phonics programs. Second grade students read poetry using microphones. Third, fourth, fifth and sixth grade students access instructional content, practice writing and communicate learning using online tools and software. (Grand)
- Students in four elementary schools use their personal mobile computing device (one-to-one) to create stop motion animation illustrating math problems. Many online and software programs are used to provide instruction. Online test preparation (UTIPS) provides critical information about what students need to learn. (Granite)
- Students compose their own stories, record their reading of stories, observe content, literary qualities and reading fluency/expression of their own work; access to on-demand instruction. (Davis, Jordan, Morgan)
- Student access to instruction and course content online through learning management software, allows them to work at their own pace, monitor their work and review their progress through the course. (Nebo, Provo, San Juan, Wayne)
- Students use online tools and software to analyze data collected through realworld projects, use photo and video software to document findings and web tools to publish projects. (Alpine)
- Students with disabilities engage with a personal mobile computing device (one-to-one) to access instructional and assessment accommodations (e.g., text-to-speech, speech-to-text, alternate text, on-demand Braille). (Granite, Iron, USDB)
- Online courses provide all students access to supplemental instruction so that content can be accessed anytime, anyplace. (Electronic High School, Kane, Open High School, Park City, Wayne)
- Preschool access to online collections of high quality educational resources, for students, parents and caregivers in English and Spanish. (UEN)