

E-4: Technology - Board approval May 23, 2012

Throughout life, students will understand and apply current and emerging technologies to extend their personal abilities and productivity.

Interpretation:

- We interpret *throughout life* to mean that during their K-12 ISD educational experience up through graduation, students have demonstrated proficient application of current technologies and have acquired 21st Century skills. These skills include the ability to persevere, be flexible, take informed risks, think critically and understand how to adapt to, and extend future technologies to enrich and advance their personal and working lives as well as enable them to connect and communicate within the global community.
- We interpret *students* to mean all Issaquah students up through the graduating class of the current year.
- We interpret *understand and apply* to mean that our students demonstrate knowledge, application and proficiency throughout their K-12 school experiences.
- We interpret *current* to mean technology tools and access available to students each year in our K-12 system.
- We interpret *emerging technologies* to mean the constantly innovating, evolving, and developing hardware and software, and escalation in access.
- We interpret *to extend their personal abilities and productivity* to mean that our students use technology embedded in their learning activities, rather than as an end in itself, to expand their thinking skills, organizational skills, research skills, and communication skills.

Reasonable progress: We have confidence that students are meeting the target of E-4 when they participate in our K-12 educational program and through earning a diploma demonstrate the skills and proficiencies to successfully complete the course requirements. Therefore, the Superintendent will show evidence that E-4 is embedded in the K-12 system for all students.

Types of evidence: Technology embedded in the K-12 system for 2011-2012 year

- Alignment: Specific technology standards and E-4 embedded in new TechSmart class at middle school.
- Requirements: TechSmart class at middle school; Introduction to Computer Science, AP Computer Science, or Software Applications 1 class at high school, or be exempted by passing the Technology Proficiency Challenge Test,
- Graduation rate: Percentage of students (at minimum) who have successfully met these Technology requirements.
- Application: Percentage of students failing TechSmart in middle school, high school Software Applications 1 class, Introduction to Computer Science, or AP Computer Science class.
- 8th grade Student Technology Self-Assessment

High School Technology Graduation Requirement

- Three rounds of the Proficiency Test are offered at the middle and high schools annually.
- The on-line tutorial preparation software is available and accessible to all interested students.
- The Proficiency Test is reviewed and updated annually to meet current practices.
- TechSmart has been implemented at each middle school.
- Students in the two remaining transition years between the previous middle school Technology Class and TechSmart will need to complete the requirement. In addition to the current proficiency test and Software Applications class, students taking the Introduction to Computer Science class, or AP Computer Science Class meet the technology proficiency requirement.

The TechSmart class has been implemented at all middle schools this year. Middle School technology teachers, Dennis Wright, Director of Career and Counseling Services, and Career and Counseling TOSA and Instructional Technology TOSAs created the new curriculum which is delivered primarily on-line using Moodle software.

The TechSmart class:

- Satisfies the high school technology graduation requirement
- Aligns with K-12 Educational Technology standards
- Aligns with OSPI Technology Integration in the Classroom Tier 3 standards
- Introduces students to on-line learning through a common core curriculum
- Includes a common end-of-course assessment

Additional Information

Several anecdotal examples of how technology is integrated into curriculum and instruction are included in this report below.

Nspires are graphing calculators and come with the Navigator System which enables the teachers' computer to communicate with the students' handheld Nspires. The Nspires provide each student with the ability to graph and manipulate functions, work in lists and spreadsheets, and use dynamic geometry software in a handheld computer/calculator. The Navigator System software enables the teacher to connect to all students' calculators simultaneously. The teacher can view all students' calculator screens on the teacher's computer.

- Teachers can project a student's calculator screen (anonymously or named) for class discussion. That student can then drive the action while the teacher moves throughout the room, helping other students, asking questions, and checking for understanding
- Teachers can send quick polls - teacher created multiple choice or open response questions. When students send their answers back the teacher has instant feedback on student understanding and can discuss questions, answers, and misconceptions immediately.
- Teachers can send worksheets to students targeting specific learning goals. These might involve manipulating graphs, figures, spreadsheets, or making connections between them. Teachers can collect the student worksheets, score them, and share with the class.

The focus of technology professional development for the last 13 years in the Issaquah School District is the Issaquah Technology Project. Teachers who attend ITP are not paid but receive training in technology integration plus the software and hardware in their classrooms to implement that technology integration training. They attend a five day immersion session in the summer and three Friday and Saturday follow-up sessions through the school year for a total of an eleven day graduate level class. By partnering the training with the hardware and software teachers have the tools they need to implement the technology into their classroom curriculum.

Throughout Issaquah classrooms teachers and students are using electronic student response systems in all areas of curriculum. Teachers can generate questions prior to teaching or on-the-fly during class and receive instant feedback from students. Teachers generate discussion prompts, get text responses, rating of questions, and save the information received for later review.

Video is being increasingly used in the classroom by teachers as well as students. Using digital cameras that take stills as well as videos, teachers are using Microsoft's Photo Story and Movie Maker to create projects to post on-line or include in classroom curriculum presentations that and student

projects that demonstrate their learning. The Educational Technology Department offers classes in 'Digital Media in Your Classroom' to teachers which includes a camera for their classrooms.

A recent software upgrade for 7th grade Earth and Space Science (Starry Night Enthusiast) has also been implemented this year. The software provides students with the ability to explore our planetary system, the space station, and the composition of stars. All Starry Night activities are tightly linked to the curriculum as a whole.

Technology recently implemented in high school physics and chemistry courses include virtual labs to simulate kinematics, force, motion, and chemical reactions. Additionally, students are taught the use of data collection devices and computer interfaces (Vernier and Pasco products) and through the use of these devices in meaningful lab experiences, students are obtaining real world application of science and technology.

The TEALS program is a partnership between the Issaquah School District and Microsoft. Kevin Wang from Microsoft runs the program with Career and Counseling Director Dennis Wright. This year all three comprehensive high schools offer Introduction to Computer Science. In addition Issaquah offers AP Computer Science and Web Design, Liberty offers AP Computer Science, and Skyline offers Web Design. The Introduction to Computer Science focuses on Computational Thinking, a problem solving process that includes formulating problems that use technology in the solution, organizing and analyzing data, using models and simulations to represent data, and implementing possible solutions efficiently and effectively using technology. Students consider the idea and build simple devices that participate in the "Internet of Things" where uncountable computers and devices are connected through the Internet for communication, data sharing, device control. Students start by using MIT's Scratch to create and build systems and learn basic HTML, javascripting, and more formal languages like Python. Introduction to Computer Science is an exploratory course that is designed to help students discover a passion for technology and can lead them on to AP Computer Science. All four high schools will have Introduction to Computer Science offerings in the 2012-13 school year.

Our Special Education students have unique needs for which technology provides support. We have students from K-12 with hearing impairments. Personal FM systems and classroom amplification systems allow them to hear and participate in class and to work with other students. Students with speech/language impairments use a wide variety of augmentative and alternative communications systems. Students with deficits in reading and writing skills use several types of hardware and software to meet their unique needs from downloading textbooks the computer reads out loud to them to using specific software packages that help with a wide variety of writing disabilities. A selection of switches,

alternative mouse devices, and specialized software supports students with significant motor impairments. Technology is critical to the learning and the success of our Special Education students.

To meet technology benchmarks and standards, Issaquah students must have ubiquitous access to technology at school. As technology is not funded by the state, the Issaquah community has been extraordinarily generous in providing funding for technology through Technology Levies. That funding has enabled the school district to provide the access needed by our students for their learning.

Data

Graduation Rate

Graduation Rates			
	2008-09	2009-10	2010-11
Actual Cohort On Time	95.9%	*92.3%	*89.8%
Actual Cohort Extended	101.1%	*95.8%	*95.6%

**The state changed the calculation of graduation rate starting in the year 2010 therefore making 2010 our base year.*

Data on 8th Grade Technology Literacy Self-Assessment Spring 2011:

	Tier 1-Personal use and communication	Tier 2-Collect, integrate, evaluate information	Tier 3-Solve problems, create solutions	Total Students
BLMS	24%	43%	34%	274
IMS	7%	59%	34%	287
MMS	17%	48%	35%	343
PCMS	36%	34%	30%	216
PLMS	11%	49%	40%	223
Total Students	18%	47%	34%	1343
<i>(Students not completing the self-assessment were added to Tier 1.)</i>				

1107 8th grade students responded of 1293 registered	All	BLMS	IMS	MMS	PCMS	PLMS
<i>Students Responding</i>	86%	81%	96%	88%	68%	93%
Question 12: What technology devices do you own? Please check all that apply						
Desktop computer	86%	87%	83%	87%	82%	87%
Laptop/Netbook computer	77%	78%	80%	74%	76%	79%
Cell phone	92%	92%	93%	89%	93%	96%
MP3 player/iPod	91%	89%	92%	93%	92%	89%
Game consol	83%	83%	82%	83%	82%	87%
iPad/Tablet	31%	36%	30%	28%	35%	30%
Other: TV, CD. Gameboy, e-readers, DVD						
Question 13: If you have a cell phone does it include a data plan?						
Yes	63%	74%	60%	61%	59%	59%
No	37%	26%	40%	39%	41%	41%
Question 14: Do you have Internet access at home?						
Yes	99%	99%	97%	98%	99%	99.5%
No	1%	1%	3%	2%	1%	0.5%
Question 15: At which locations do you go online? Please check all that apply.						
Home	99%	99%	98%	99%	100%	100%
School	90%	88%	91%	88%	97%	90%
Library	61%	59%	69%	62%	61%	50%
Friend's house	76%	79%	70%	76%	80%	77%
Other: wherever there is wifi, grandparents						
Question 16: What online activities do you choose when you are outside school?						
Games	68%	75%	61%	70%	63%	68%
School research/homework sites	76%	74%	76%	70%	78%	86%
Social networking/chat	75%	74%	74%	74%	76%	76%
Video sites	67%	68%	67%	64%	61%	72%
Question 17: What is the one site you visit most?						
Facebook. Google, YouTube						

This spreadsheet is a summary of ISD technology provided to OSPI for the 2012 on-line technology inventory.

School	All Instructional Computers (total of library, lab, classrooms)	Class-rooms	Library	Labs & Laptops	Office	FTE as of 4/1/12	Ratio: Students to Instructional Computers	Electronic Student Response Systems	Slates	Doc Cams	Pro-jectors	ACTIV boards
AP	291	201	19	71	31	502	1.7	17	2	42	41	33
BW	256	151	21	84	37	419	1.6	23	1	27	35	24
CA	320	250	11	59	25	542	1.7	17	2	37	39	32
CH	224	141	19	64	30	457	2.0	14	1	36	39	31
CL	224	83	16	125	43	318	1.4	15	3	38	36	33
CR	285	221	25	39	31	538	1.9	16	2	34	41	31
CS	251	74	20	157	47	580	2.3	14	0	38	40	38
DS	259	174	19	66	23	525	2.0	9	0	39	38	36
EN	268	198	16	54	49	540	2.0	14	0	38	47	37
GR	285	206	18	61	49	752	2.6	32	5	51	53	46
IVE	292	177	24	91	24	530	1.8	23	12	35	40	34
MH	250	160	19	71	21	376	1.5	14	0	32	31	26
NC	240	147	17	76	75	486	2.0	20	17	30	41	31
SH	248	162	15	71	52	527	2.1	16	1	37	38	39
SS	333	156	20	157	21	552	1.7	16	12	37	42	35
BLMS	611	230	4	377	48	840	1.4	23	3	57	56	40
IMS	533	213	46	274	64	760	1.4	30	36	43	43	39
MM	514	290	64	160	88	916	1.8	32	12	51	52	42
PCMS	508	230	41	237	64	758	1.5	24	3	70	53	38
PLMS	656	56	55	545	52	791	1.2	31	2	48	73	51
IHS	1116	525	9	582	224	1,787	1.6	99	136	94	132	1
LHS	845	151	106	588	39	1,143	1.4	13	4	61	74	14
SHS	860	106	61	693	243	1,849	2.2	41	126	86	102	13
TM	123	87	7	29	20	92	0.7	5	0	11	10	11

Data on failure rate for required middle school TechSmart class:

School	# of students who took Tech Smart Tri 1 & 2 in 2012	Failure Rate
Beaver Lake MS	295	0.00%
Issaquah MS	190	1.58%
Maywood MS	178	0.00%
Pacific Cascade MS	183	1.09%
Pine Lake MS	224	0.00%

Data on failure rate for Technology Proficiency Challenge Test:

Technology Proficiency Challenge Test		
School	# of students taking test	Failure Rate
BLMS	87	48.3%
IMS	68	67.6%
MMS	25	80.0%
PCMS	74	64.9%
PLMS	44	50.0%
IHS	221	20.4%
LHS	32	53.1%
SHS	28	17.9%
TM	1	100.0%

Data on failure rate for required high school Software Applications 1 class:

School	# of students who took Software Tech	Failure Rate
Liberty HS	92	5.43%
Skyline HS	100	0.00%

Data on failure rate for Intro to Computer Science or AP Computer Science class:

School	# of students who took Intro or AP Computer Science	Failure Rate
Issaquah HS	16	0.00%
Liberty HS	60	1.67%
Skyline HS	23	4.35%

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