DISTRICT TECHNOLOGY STRATEGIC PLAN
JULY 1, 2010 – JUNE 30, 2015

Background: The San Diego Unified School District

The San Diego Unified School District, also known as San Diego City Schools (SDUSD), is the second largest school district in California and the 13th largest urban school district in the country. SDUSD serves over 132,000 K–12 students living within the City of San Diego at 225 educational facilities (including charter schools): 119 elementary schools, 24 middle schools, 30 high schools, 13 atypical grade configuration schools, and 15 alternative schools.

The City of San Diego comprises a wide range of diverse communities. The northern and western areas of the City (particularly those areas bordering the Pacific Ocean) tend to be more affluent and somewhat less ethnically diverse than the southern and eastern areas of the City, which include the region's federal Enterprise Community. This diversity is reflected in the wide range of schools that serve the communities making up the City of San Diego. The district's students are ethnically diverse: 44.4% of students are Hispanic, 25.3% are White, 16.5% are Asian, and 13.2% are African-American. The students are even more diverse than the City of San Diego as a whole, which is 25% Hispanic, 49% White, 14% Asian and 8% African-American. SDUSD students represent more than 15 ethnic groups, and speak more than 60 languages and dialects.

1.   PLAN DURATION CRITERION

This plan addresses all the criteria required for state level approval as an EETT plan and federal requirements as an e-rate plan. Appendix C details where in this plan each of the criteria is addressed.

1.a. The plan should guide the district's use of education technology for the next three to five years.

The SDUSD education technology plan describes the district's use of education technology for the next five years, from July 2010 through June 2015.

2. STAKEHOLDERS CRITERION

The SDUSD Chief Information and Technology Officer formed an educational technology planning team that included decision-makers representing the key departments within the district that will implement the plan. Planning Team members also assigned staff members from their departments to participate in planning meetings and provide information, research, data and input for the development of the Educational Technology Strategic Plan.

The Educational Technology Planning Team included the director and key staff from each of the district divisions. The Planning Team met regularly for over a year to develop the district's Educational Technology Strategic Plan. A central focus of the planning activity is the SDUSD "21st Century (i21) Interactive Classroom Initiative," a five-year phased plan to implement the significant investment in new educational technology in public schools approved by San Diego voters in November 2008. The approved "Proposition S" bond measure will provide over $42 million per year through 2014 for educational technology (and a total of $400 million over 15 years).

The i21 Initiative will provide teachers with a variety of digital tools to create curriculum materials that provide access, engagement and achievement to a diverse group of learners in the classroom. An i21 Steering Committee made up of 10 teachers and 12 principals developed the specifications for the technology tools to be adopted through the i21 Initiative. The i21 technology tools selected by the Steering Committee will allow the teacher to configure the learning environment according to the context of the student-centric work at hand to meet state standards and learn 21st century skills as thinkers, creators, designers and builders. The tools include:

1. An *Interactive Whiteboard* to provide students a multi-sensory experience;

2. A *Presentation Station* including the *Document Camera* and *Teacher's Multimedia Tablet Computer*;

3. *Classroom Audio Technology* including an HDTV tuner, DVD player/recorder and sound-field amplification wireless microphone system that allows the teacher and students to be clearly heard anywhere in the classroom; and

4. *Student computers (Netbooks):* Classrooms will be equipped with a one-to-one ratio for every 3rd-12th grade student. Features include software applications to create content; wireless access to the Internet; eReader for eBooks and eTextbooks with text to speech options; MP3/Podcasting software; a student response system built-in as Virtual Response software for formative assessment; and Web 2.0-based applications.

The Proposition S bond measure covers hardware and software only; it does not include funding for professional development for teachers to use that technology effectively in the curriculum. Therefore, SDUSD plans to utilize EETT and other district professional development funding to prepare teachers to integrate technology into the curriculum to expand student engagement and

21st century learning opportunities.

As part of the year-long Educational Technology planning process, each SDUSD division conducted extensive research and planning about the components of the Educational Technology Strategic Plan for which they would be responsible. The Educational Technology Planning Team reviewed the information provided by district divisions and departments for the development of the district's strategic plan. The divisions that participated, and the information they collected and provided, include:

- Integrated Technology Support Services (ITSS) Led by Chief Information & Technology Officer, Darryl LaGace, Integrated Technology Support Services (ITSS) is comprised of four primary teams (Information Technology, Software Applications, Educational Technology and Attendance) that directed work-group meetings to identify needs and provide recommendations for the effective development, management and support of instructional technology tools and resources, business and data systems, and network infrastructure to mange and support student learning. ITSS teams conducted extensive background planning sessions and provided information about the use of integrated information systems in both instruction and administration.

  o The Information Technology Team conducted extensive reviews of the technology capacity at each school, identified the hardware, software and broad-band connectivity needed at each school site to link it to the district information system, instructional applications and the Internet, and provided this information to the Educational Technology Planning Group.

  o The Educational Technology Team provided the coordination for all Educational Technology Planning Group meetings, surveys, and activities. The Director of Educational Technology and staff conducted face-to-face and online planning sessions with site teachers, students, staff and principals to develop the vision and goals for educational technology use in the district. The Educational Technology Resource Teachers, who work daily with site teachers, identified the specific technology hardware, software applications and connectivity applications that could benefit instruction. Its findings and conclusions were reported to the full Educational Planning Group and served as a foundation for the development of the Plan.

- Instructional Services The Deputy Superintendent and instructional support area leaders participated in work group meetings and held additional input and planning meetings within the division. These planning meetings included teachers from a range of schools, students, school principals and other administrators, and district professional development directors. Participants in these group planning sessions discussed the needs for educational technology at their schools and across the curriculum, how technology would best be incorporated into the curriculum, and how students and teachers alike could utilize technology in learning. The input from these meetings was organized and provided to the full Educational Technology Planning Group.

- <u>Student Services.</u> The Chief Student Services Officer and key staff participated in work-group meetings to identify instructional technology and business application needs in relation to special education, counseling, and student support services. The input from these meetings was organized and provided to the full Educational Technology Planning Group.

- <u>Finance and Business Services</u>. The Chief Financial Officer and his key staff participated in the work group meetings with staff, external experts and vendors to identify the business and data systems that could be implemented to support business services. Related information was used by the Educational Technology Planning Group to identify ways to integrate and leverage the development of the instructional and administrative applications of information technology.

- <u>Facilities Planning</u>. The Facilities Planning division has conducted all of the background reviews and planning needed to identify the physical infrastructure needed to accommodate the connectivity and Internet uses identified by Integrated Technology Support Services. The division has implemented and managed the construction and physical improvements to each school site identified.

- <u>District Relations</u>. The District Relations division staff participated in work-group meetings to identify technology needs in relation to communications, community relations, and Police Services. The input from these meetings was organized and provided to the full Educational Technology Planning Group.

- <u>Chief School Improvement Officers</u>. Identified School Improvement Elementary and Secondary Officers participated in work-group meetings to identify instructional and operational needs based upon district supervision of schools. The input from these meetings was organized and provided to the full Educational Technology Planning Group.

- <u>Human Resources</u>. The Chief Human Resources Officer and key staff participated in work group meetings to provide input on the efficacy of business and data systems used to manage personnel processes. The input from these meetings was organized and provided to the full Educational Technology Planning Group.

The Planning Team also obtained input from district stakeholders through meetings, work sessions and surveys. The stakeholders consulted included:

- *Students*. The Educational Technology Resource Teachers obtained input about the use of technology in school from students at the school sites. They followed up these conversations with student surveys designed to collect input from students regarding their technology use in school, at work, and at home. The planning group also reviewed the local and national results of student surveys conducted for the National Education Technology Plan to obtain additional input concerning students' use of technology in education and in their lives.

- *Parents*. District parent input was utilized in the development of the plan, utilizing the results of the Parent Survey. The Parent Survey collected their input about importance of a 21st Century Learning Environment for their child, the value of increased access to technology and the need maintain updated online curriculum and equipment.

- *Teachers*. Teachers were able to provide input to the development of the i21 Initiative and the Educational Technology Strategic Plan through online discussions and surveys, and Professional Development sessions with the Educational Technology Resource Teachers. Teachers also were encouraged to take the district Technology Survey, an online survey that collected input about technology use and needs from teachers, teachers' aides, site administrators and staff.

- *Administrators and staff*. Site principals and other administrators provide input to the technology plan through planning discussions in their Instruction Division meetings and at their schools, and by completing the District Technology Survey. Site Principals also were given the opportunity to review and comment on a draft of the plan before its submission. District office administrators and staff worked on the planning team activities and provided additional input through the Central Office Technology Survey, which collected input about their technology use and needs.

- *Community members*. Community members' input concerning the use of technology in elementary and secondary education was obtained through a community survey.

- *Board of Education:* Input regarding the strategic plan for technology was provided through the development of the Board Governance Policy Operational Expectations for the use of technology to support student learning.

In addition, a number of stakeholders volunteered to read and provide feedback to a draft of the Educational Technology Strategic Plan. Their comments and edits have been incorporated into the final version of the plan.

Implementation of the Plan. Each group of stakeholders will have an important role in the implementation of the Educational Technology Strategic Plan. Students will use the educational technology applications made available to them through the i21 Initiative and will provide their feedback about the technology integration. Students will be the catalysts of continuing development as they become more technologically savvy and their expectations for technology use in their learning increase. Parents will encourage student technology use by providing opportunities for their children to have access to information and communications technology, and encouraging them to learn about and use technology. Parents also will provide regular feedback through the monitoring and evaluation of the implementation of the plan.

Teachers will play a key role in implementing the strategic technology plan. As a primary strategy, the district's i21 Initiative will empower teachers to learn to utilize technology to enhance learning, and make the effort to apply these new skills in their teaching and instructional activities in upgraded 21st century learning environments rich with technology tools and resources. A group of teachers will be selected and trained to serve as i21 Lead Technology

Teachers. They will work with their colleagues at the school site to help them use the technology made available through the i21 Initiative and integrate it into their teaching and learning activities. All teachers will be asked to provide regular feedback through their Principals and through regular surveys conducted to monitor and evaluate this plan.

The site Principals and other administrators will coordinate and guide the implementation of the technology plan at their sites. They will help collect feedback from their teachers and staff, and will provide their own feedback and recommendations to the ongoing implementation of the plan. Community members will play an ongoing role in the implementation of the Technology Plan through their support of and participation in technology integration within the district. Local businesses and organizations have supported the development of learning opportunities for students and teachers, and will continue to work with district staff and teachers on technology integration in learning.

District administrators and other central office staff members will be responsible for the oversight, coordination and management of the Educational Technology Plan's implementation. The district will form the Educational Technology Strategic Plan (ETSP) Committee to oversee ongoing planning, implementation, monitoring and evaluation of the ETSP. Stakeholders groups will be represented on three subcommittees:

1. The Executive Subcommittee, which will include the leadership of key district divisions. The Executive Committee will be responsible for the oversight of the EETT formula grant program and the overall implementation of the ETSP.

2. The Implementation Subcommittee, which will consist of representatives of each of the key district departments participating in the implementation of the plan. This Committee group will review the implementation plans and their progress in achieving them on an ongoing basis. Committee members will coordinate the implementation activities to promote successful integration of technology into teaching and learning.

3. The Evaluation Subcommittee will review the data collected by the implementation committee and program staff to determine whether the ETSP is achieving its objectives and goals. The Evaluation Subcommittee will include representatives of the district divisions implementing the plan, other district administrators, teachers and staff, and students, parents and community members who accept the invitation to serve on the committee.

3.	CURRICULUM COMPONENT CRITERIA

The mission of San Diego Unified Schools is to ensure *"All San Diego students will graduate with the skills, motivation, curiosity and resilience to succeed in their choice of college and career in order to lead and participate in the society of tomorrow"*. The SDUSD vision for technology is aligned with the district's overall mission:

> *The San Diego Unified School District demonstrates system-wide commitment to using technology effectively in a 21st century learning environment to improve student achievement, support teaching and learning, and prepare students to succeed in school and the workplace.*

Using an inclusive planning process, the SDUSD Educational Technology Planning Group identified decided that the Educational Technology Strategic Plan will focus on all SDUSD students in grades K-12. A key goal is for SDUSD students to achieve national technology standards by grade 8 as required by No Child Left Behind (NCLB). Therefore, several curriculum objectives focus on students in the middle school grades.

Several key strategies will be used to integrate technology, instructional software and online learning supports into all curricular areas so that students develop the 21st century information and communications technology skills that will support their learning and success in the working world. These key strategies include:

- The district will launch and implement the Integrated 21st Century (i21) Interactive Classroom Initiative as a primary strategy. Through the SDUSD i21 Interactive Classroom Initiative, the district has adopted a systemic approach to providing a 21st century learning environment that enables teachers to appropriately integrate technology into instruction in all curricular areas through a variety of interactive technologies and resources designed to be responsive to students' learning needs and incorporating Universal Design for Learning concepts as well as enable students to meet the NCLB requirement of being technologically proficient by grade 8. The 21st Century (i21) Initiative is an engaging interconnected learning environment designed to optimize student access and participation by integrating mobile computing, audio, visual and formative assessment technologies across the curriculum. The 21st Century (i21) Interactive Classroom Initiative is a multi phased five-year plan beginning July 1, 2009 that ultimately will provide classroom ratio of 1:1 computing in grades 3-12. It is anticipated that by the end of the 2015 school year, approximately 7,000 classrooms will have been updated, thus impacting teaching and learning for over 132,000 students and their teachers.

- The district will form a technology proficiency review group that includes representatives of Instructional Support Services, teachers, administrators, staff, and the Educational Technology Team. District will establish technology proficiencies for students, administrators, teachers and support staff to support the district mission of preparing students for college and career in order to lead and participate in the society of tomorrow. The goal is

to integrate district-defined technology proficiencies into staff development opportunities for all employees, providing the skills, tools and resources to support student learning.

- o Proficiency for Students: Students will be required to meet technology proficiencies by grade 8 and as required for the district high school computer literacy graduation requirement. The SDUSD technology proficiencies will be aligned to the California Department of Education (CDE) definition of Technology Literacy and the NETS for Students: They assess the student's ability to responsibly use appropriate technology to communicate, to solve problems, and to access, create, integrate, evaluate, and manage information to improve learning of state content standards in all subject areas and to acquire lifelong knowledge and skills in the 21st century. The SDUSD technology proficiencies will also support the NCLB Title II, Part D goal of technological literacy for all students by the end of grade eight by delineating the knowledge and skills students should acquire at each grade levels. The Instructional Support Services departments will ensure that all curriculum maps and guides incorporate strategies for technology integration. This will provide a clear roadmap for teachers to use as they provide opportunities for their students to use technology to support their learning.

- o Proficiency for Teachers: The Educational Technology Team will collaborate with the Steering Committee to review the district's technology proficiency standards to refine thelist of i21 technology proficiencies organized around the California state standards for technology usage and integration, as adopted by the California Commission on Teacher Credentialing, CTAP EdTechProfile and the NETS Standards for teachersProfessional development provided through the i21 initiative will be organized through a sequence of trainings, self-checks, and on-site support to enable teachers to attain identified proficiencies in order to integrate technology into teaching and learning.

- o Proficiency for Support Staff: District departments will collaborate to identify necessary training for the utilization of business and data applications required for the efficient day-to-day operations of district instructional and business processes. Training will be designed and implemented to support employees in building capacity to carry out their work.

- o Proficiency for Administrators: The Educational Technology Team in collaboration with the area superintendents team will identify i21 technology proficiencies that are organized around the areas of leadership, teaching and learning, assessment/data-driven decision-making, and operations as defined in the NETS for Administrators and *Partnership for 21st Century Skills*. Professional development will be integrated into monthly instructional conferences and operations meetings to build capacity in site and district leadership to lead, model and evaluate the integration of i21 technology to transform teaching and learning.

- The district area superintendent of curriculum, site teachers and administrators, and the Integrated Technology Support Services Department will collaboratively review and

recommend software and online tools that can be used to support learning for students who are below grade level in literacy or in math, and for students who need assistance developing English language proficiency. This software will help enable these children to gain the academic foundations they need for their future academic achievement.

- The district will identify key teachers who are academic leaders at the school sites, and will train them to serve as i21 Lead Technology Teachers to help build the technology use and integration capacity of the teachers at their school site. These digital learning Lead Technology Teachers will serve as mentors and coaches to other site teachers to support their integration of technology into the curriculum and resulting student achievement.

- The Educational Technology Team will provide intensive training and professional development support to all district teachers through the district's i21 Initiative in order to prepare teachers to use the technology tools and resources designed into their school classrooms and to integrate technology into their teaching to support student learning. Additionally, every professional development opportunity offered in the district will contain a thread on the use of 21st century classroom tools and resources within the context of the instructional area.

- The Educational Technology Team will work closely with the Beginning Teacher Support and Assessment (BTSA) induction program to help prepare new teachers to utilize effective technology in their content area to support student learning with the tools and resources of the i21 classroom, and for their own professional development. Participating teachers receive on-site support from a trained peer coach/support provider. Additional support comes in the form or coursework and monthly professional development academies and online support.

The BTSA program's Technology course is designed to meet technology requirements for obtaining a Professional Clear Credential. The BTSA Technology course helps prepare new teachers to utilize effective technology in their content area for students and for their own professional development. The course objectives include having each participating teacher able to: communicate with professional colleagues through a variety of online media; access, discriminate, use and reference information from a variety of online databases; teach an inquiry curriculum based lesson to their students using technology as a presentation tool; teach their students how to access, discriminate, use and reference information from a variety of online databases; access, manipulate, evaluate and use to inform instruction their school-provide student data; and use computer-based programs to grade, evaluate and guide their instruction. The San Diego Board of Education is considering changes to the BTSA program as part of its cost-cutting strategies in response to the current budget crisis; the strategy described here may change in response to Board decisions.

3.a. *Description of teachers' and students' current access to technology tools both during the school day and outside of school hours.*

The district's elementary, middle and high schools have different levels of access to computers, as noted in Table 1 below. In general, elementary schools have a higher student-to-computer ratio than do middle schools or high schools. More computers are in classrooms at the elementary level; in middle schools and high schools more are found in computer labs. Elementary schools are less likely to have Internet access on most of their computers, and their computers are more likely to be over three years old.

TABLE 1: ACCESS TO COMPUTERS

	Elementary Schools	Middle Schools	High Schools
Average ratio of students to computers[1]	4.19	2.39	3.58
Percent of computers in classrooms[2]	71%	49%	55%
Percent of computers in labs[2]	13%	23%	27%
Percent of computers in library[2]	6%	8%	5%
Percent of computers in carts[2]	4%	16%	11%
Percent of computers with Internet access[2]	81%	96%	97%
Percent of computers under 3 years old[2]	30.9%	44.6%	32.5%
Percent of computers 3-4 years old[2]	16.6%	21.0%	21.8%
Percent of computers over 4 years old[2]	43.2%	34.0%	47.0%

Source: [1]SDUSD data reported to the California Department of Education, 2008-2009; [2]State Technology Survey 2007.

Most teachers (95%) reported that they have access to a computer at home, and 74% reported that they regularly use their computer at home for work-related activities (another 20% occasionally use their computer at home for work). Over two-thirds (70%) of teachers reported that they regularly access the Internet at home for work-related use (91% of teachers reported that they have Internet access at home).

Some schools offer access to technology tools for teachers and students to use at home. High schools are more likely than middle schools or elementary schools to provide faculty email and Internet access at home, or to provide computers for staff to use at home. High schools also are the most likely to report using technology to improve communications between school and home, with over 93% doing so.

3.b. Description of the district's current use of hardware and software to support teaching and learning.

Teachers report their use of technology resources to support teaching and learning on the Technology Use component of the annual EdTechProfile survey. The tables below are taken from that survey, and describe the typical frequency and type of use of hardware and software to support teaching and learning. Of the teachers who responded to the survey, 20% had one to three years of teaching experience, 28% had four to eight years of teaching experience, 21% had nine to fifteen years, and 32% had over sixteen years of teaching experience.

Table 3 reports how often teachers use the following technology tools for classroom management. As can be seen from the table, teachers are most likely to use computers, Internet access and email on a daily or weekly basis for classroom management. They are much less likely to use hand-held electronic devices as they are not available.

TABLE 3. USE OF TECHNOLOGY TOOLS FOR CLASSROOM MANAGEMENT

Technology Tool	Daily	2-4 days a week	Between Once a Week and Monthly	Less than Monthly	Never Use It	Not Available
Computers and peripherals (scanner, printer)	76%	13%	5%	2%	2%	1%
Internet	75%	12%	6%	3%	4%	1%
Email	80%	9%	4%	3%	3%	1%
Hand-held electronic devices (PDA, GPS, heart monitor, etc.)	10%	5%	6%	6%	6%	67%

Source: SDUSD EdTechProfile 2008

Table 4 below reports how often teachers use technology tools for classroom instruction. Teachers are somewhat more likely to use computers, the Internet and email for classroom management than they are for classroom instruction.

TABLE 4. USE OF TECHNOLOGY TOOLS FOR CLASSROOM INSTRUCTION

Technology Tool	Daily	2-4 days a week	Between Once a Week and Monthly	Less than Monthly	Never Use It	Not Available
Computers and peripherals (scanner, printer)	56%	21%	6%	5%	4%	4%
Video based presentation devices (VCR/DVD, laser disc player, LCD projector)	33%	18%	23%	13%	6%	6%
Video based creation tools (video camera, digital camera)	9%	9%	22%	22%	17%	19%
Internet	40%	20%	19%	10%	8%	3%
Email	43%	12%	11%	10%	19%	5%
Hand-held electronic devices (PDA, GPS, heart monitor, etc.)	5%	4%	5%	7%	9%	70%

Source: SDUSD EdTechProfile 2008

Table 5 presents the ways that teachers use technology tools (computers, video, Internet, and hand-held devices) at their school. Teachers are most likely to use technology tools to communicate with colleagues, manage student grades and attendance, and create instructional materials.

TABLE 5. USES OF TECHNOLOGY TOOLS

Use of Technology Tools	Daily	2-4 days a week	Between Once a Week and Monthly	Less than Monthly	Never
Create instructional materials	37%	32%	18%	7%	5%
Deliver classroom instruction	35%	24%	17%	11%	13%
Manage student grades and attendance	68%	8%	7%	5%	12%
Communicate with colleagues	66%	18%	9%	4%	3%
Communicate with parents or students	30%	24%	22%	10%	15%
Gather information for planning lessons	31%	32%	23%	9%	5%
Access model lesson plans and best practices	20%	23%	29%	16%	10%

Source: SDUSD EdTechProfile 2008

About three-quarter of teachers (72%) reported that they have access to an electronic student information system, but only 23 percent (23%) reported that they use an electronic student information system to make decisions in lesson design and implementation to improve student academic achievement.

Table 6 reports the frequency with which teachers use technology tools for instruction in different subject areas. Language Arts and Math teachers use technology tools the most frequently for instruction. The majority of teachers reported that they never use technology tools (or that they are not applicable) in most subjects.

TABLE 6. USE OF TECHNOLOGY TOOLS IN INSTRUCTION, BY SUBJECT

Subject Area	Daily	2-4 days a week	Between Once a Week and Monthly	Less than Monthly	Never	Not Applicable
Reading and Language Arts	28%	19%	15%	6%	6%	25%
Mathematics	19%	16%	14%	8%	10%	33%
Science	10%	15%	19%	10%	10%	37%
History/Social Science	10%	14%	19%	11%	11%	35%
PE/Health	3%	4%	10%	13%	22%	48%
Fine Arts	4%	5%	13%	13%	17%	48%
Business/Computer Science	3%	3%	4%	4%	17%	69%
Foreign Language	2%	2%	3%	3%	17%	73%
Home Economics	1%	1%	2%	2%	17%	77%
Industrial Arts	1%	1%	2%	2%	17%	77%
Careers	3%	2%	4%	5%	15%	70%

Source: SDUSD EdTechProfile 2008

Teachers are most likely to assign classroom activities that require their students to use include computers and peripherals, followed by the Internet. However, a sizable proportion of teachers never use technology tools or report that they are not available, as indicated in Table 7 below.

TABLE 7. TEACHERS' CLASSROOM ASSIGNMENTS REQUIRE STUDENTS TO USE TECHNOLOGY TOOLS

Technology Tool	Daily	2-4 days a week	Between Once a Week and Monthly	Less than Monthly	Never Use It	Not Available
Computers and peripherals (scanner, printer)	18%	19%	24%	16%	13%	11%
Video based presentation devices (VCR/DVD, laser disc player, LCD projector)	12%	10%	18%	19%	20%	20%
Video based creation tools (video camera, digital camera)	4%	4%	11%	20%	29%	32%
Internet	15%	15%	22%	17%	19%	12%
Email	11%	7%	11%	14%	33%	25%
Hand-held electronic	3%	2%	3%	6%	15%	72%

Source: SDUSD EdTechProfile 2008

Table 8 shows that word processing is the most frequently assigned use of technology. However, a large proportion of teachers never assign work that involves using technology tools (such as computers, video, Internet, and hand-held devices).

TABLE 8. FREQUENCY OF ASSIGNMENTS USING TECHNOLOGY TOOLS

Use of Technology Tools	Daily	2-4 days a week	Between Once a Week and Monthly	Less than Monthly	Never
Word processing	9%	16%	28%	18%	30%
Reinforcement and practice	13%	18%	22%	15%	32%
Research, using the Internet or CD-ROMs	6%	13%	29%	21%	30%
Creating reports or projects	5%	6%	30%	24%	32%
Demonstrations or simulations	4%	8%	19%	20%	49%
Email/Internet correspondence with experts, other students	3%	4%	10%	20%	64%
Solving problems or analyzing data	5%	8%	15%	19%	53%
Graphically presenting information	4%	6%	16%	21%	53%

Source: SDUSD EdTechProfile 2008

Students are most likely to use technology tools (including computers, video, Internet, and hand-held devices) for their classroom assignments in the classroom or other instructional area (43%), followed by the computer lab (29%) or library media center (28%).

As Table 9 illustrates, at present most teachers never use technology tools to support and improve communication between the school and students' homes. Many of these technology tools are not readily available within the district.

TABLE 9. TEACHERS' USE OF TECHNOLOGY TOOLS FOR HOME/SCHOOL COMMUNICATION

Technology Tool	Daily	2-4 days a week	Between Once a Week and Monthly	Less than Monthly	Never
Voice Mail	24%	18%	17%	10%	31%
School web site with class related information, such as assignments, grades, parental information, etc.	24%	11%	14%	12%	38%
Video conferencing	1%	1%	2%	4%	92%
Electronic grading system	27%	10%	11%	12%	40%
Online student assessments	6%	6%	13%	13%	63%

Source: SDUSD EdTechProfile 2008

3.c. Summary of the district's curricular goals that are supported by this tech plan.

San Diego Unified School District has adopted the state content standards in all subjects as the basis of all curriculum and instruction. Research-based programs and strategies that enable students to succeed in meeting standards (as described in Criterion 9b) drive the implementation of the standards and the curricular goals in the district. The district utilizes a system for assessing student progress and improving or changing programs until all students are reached effectively. Each content area has developed a systemic K-12 approach and detailed strategies for implementation across grade levels, subject areas, and schools. The effective utilization and integration of educational technology is essential in helping students at all levels to succeed in meeting standards. This Educational Technology Strategic Plan focuses on integrating technology systemically into the K-12 curriculum.

The district's curriculum goals are directed toward providing for all students the highest quality teaching, the richest learning environment, and sufficient time to meet high standards. The district curriculum goals include:

1. High Expectations for All Students: Through broad commitments to well-defined curriculum, content standards, and technology access, we will raise the expectations for achievement for all children, ~~including low performing students.~~

2. <u>Districtwide Strategies to Prevent School Failure</u>: Through professional development that includes direct training, classroom coaching, and collegial reflection, our teachers will deepen their knowledge and expertise in conveying the curriculum, and all students in their classrooms will benefit from improved instruction.

3. <u>Intervention Strategies to Assist Students Who Are Struggling</u>: SDUSD is implementing a Response-to-Intervention (RTI) model in which early identification, parent involvement, and appropriate tiered support will provide literacy and mathematics strategies and other academic programs within and beyond the instructional day and year.

4. <u>Retention and Support Strategies to Accelerate the Learning of Students Who Have Fallen Behind</u>: Through a program of accelerated study and extended learning time at key grade levels, students who are significantly below grade level will have the opportunity to catch up with their peers early in their school careers.

5. <u>Leadership Strategies to Ensure Academic Success in Every Classroom</u>: Through ongoing leadership development of principals, vice principals, subject supervisors, and district curriculum directors, progress toward the goals will be directed and sustained at every school.

Implementation of the district's Educational Technology Strategic Plan will support the achievement of these curriculum goals by making technology available and training teachers to utilize it to improve instruction, provide academic support for students who are struggling, offering opportunities to accelerate learning for students who have fallen behind, and to facilitate the communications needed for successful leadership.

Academic Content Standards, District Curriculum Frameworks, and Programs of Study

The district has adopted the California Department of Education's (CDE) Content Standards in English language arts, mathematics, history-social science, science, visual and performing arts, and English language development. For subject areas not yet covered by the statewide Standards, including physical education and world languages, the district's Standards, Assessment and Accountability Division has worked with curriculum experts, school personnel, parents and community members to develop content standards aligned with state frameworks.

The state standards are used as the written curricula that describe for teachers what students must know and be able to do in each subject. district curriculum, student level assessment, textbooks, instructional materials and professional development activities are all aligned with the standards. Content standards may be accessed through the state (CDE) and district websites, so they are accessible to parent and community members, as well as teachers and students. High quality instructional materials and intensive professional development are the tools that enable teachers to teach to the state standards.

Comprehensive literacy and mathematics frameworks provide a consistent set of strategies, knowledge, and skills across all classrooms. The frameworks are designed to ensure that all

students get high quality instruction and content that will enable them to meet designated criteria and be successful in school. Research-driven, standards-based Literacy and Mathematics Frameworks guide teachers and principals toward effective instruction and curriculum implementation.

The effective use of enhanced instruction and extended learning time within and beyond the school day for literacy and mathematics at the entry grades means that students are more likely to meet grade level standards and therefore will be more likely to pass successfully to the next grade. The emphasis on competency in literacy and mathematics provides students with the academic preparation they need to be successful in all their studies, pass the High School Exit Exam, and compete for desirable post-secondary education and employment opportunities. Curriculum materials that integrate technology and enable teachers and students to meet and exceed state standards are being phased through the i21 Initiative.

Literacy. The emphasis is on ensuring that all elementary students are reading at grade level by the end of the third grade, and all secondary students get extra support in sixth and ninth grades. The district Literacy Framework is aligned to state frameworks and district standards. The Literacy Framework provides a comprehensive, balanced approach to literacy that gives students the skills they need to be successful in school.

The elements of the framework that address reading include reading aloud, shared reading, guided reading, independent reading, phonemic awareness, and systematic, explicit phonics. The elements of the framework that address writing include modeled writing, shared writing, guided writing, and independent writing. Technology may be integrated into the literacy curriculum through its use to support reading, writing and research with computer applications and tools for accessing, organizing and presenting text and information.

The elements of the framework form the basis for instruction that provides all students with the research-based knowledge and skills used by the most fluent readers and writers. The elements build on one another in a logical progression that allows student to undertake increasingly difficult reading and writing tasks as the move up through the grades. The pedagogical approach uses the Readers' and Writers' Workshop models in which students work in collaborative groups to decode and discuss text and produce written work. Teachers help students use educational technology to produce and present their written materials. The outcome of using the Literacy Framework is that students can utilize their reading and writing abilities to access a wide range of texts for work, study, and enjoyment.

Mathematics. The focus on mathematics learning revolves around the expectation that all students learn algebra in order to be competitive for jobs in the expanding technology-based sector of the economy. In the past algebra has been a gatekeeper course that often was withheld from economically disadvantaged and traditionally underrepresented students and prevented them from being prepared for college and technical careers.

San Diego Unified School District has made a commitment to removing the barriers to traditionally college-preparatory mathematics courses and helping all students achieve success at

a high level of mathematics fluency and understanding. The district goals for mathematics include:

- All students are to learn and achieve at or above grade level in mathematics as reflected on multiple assessments. Prevention, intervention, and retention programs will support students so that they can reach this level of achievement.

- All students are to have consistent high quality learning opportunities in mathematics provided by qualified teachers, and grounded in standards-based frameworks, curriculum materials, and assessments.

- All teachers of mathematics are to be engaged in ongoing learning that supports instruction based on the district and state framework—including professional development, university-based content study, and conceptually based pedagogy programs.

- Administrators at each school are to learn to recognize effective mathematics and curriculum instruction and oversee and support its implementation.

- Technology is to be used to support learning and teaching in mathematics with teachers and students who can use technology tools and applications to demonstrate concepts, collect and analyze data, acquire knowledge and skills, and access and organize information resources. Computer applications and graphing calculators provide concrete visual images and representations for mathematical concepts and tools for data organization and analysis.

<u>Science</u>. The State of California Science Framework/Standards document is used to guide science instruction. New curriculum materials have been adopted each year in science that are aligned with the standards and that provide students a range of learning opportunities. A required course sequence has been adopted for all students in high school consisting of physics, chemistry, and biology. Technology is integrated in all grade levels as a tool for conducting research, collecting data, and forming analyses. Curriculum maps for science have been developed and are available online at http://prod031.sandi.net/science.

<u>Social Studies</u>. The district's social studies curriculum is aligned with the California State History-Social Science Framework and Content Standards. Teachers are encouraged to develop units of study around grade level standards that will allow their students to access the content and develop a deep understanding of history-social science. Content may be accessed and studies using educational technology tools, including the Internet. The goals of the social studies curriculum include knowledge and cultural understanding, democratic understanding and civic values, and skills attainment and social participation. Five areas are emphasized in the social studies curriculum: historical comprehension; geographical and economic literacy; historical research, analysis and interpretations; historical issues – analysis and decision-making; and civics and government. Technology may be integrated into the social studies curriculum through its use to support reading, writing and research with computer applications and tools for accessing, organizing and presenting text and information.

3.d. List of clear goals, measurable objectives, annual benchmarks, and an implementation plan for using technology to improve teaching and learning by supporting the district curricular goals.

The SDUSD Educational Technology Strategic Plan focuses its efforts systemically (K-12) to meet No Child Left Behind standards.

> Goal 3.d.1. Teachers will appropriately integrate technology into instruction in all curricular areas, using a variety of technologies to support the needs of all students.

Objective 3.d.1.1   By 6/2015, 100% of district curriculum guides and maps will include written strategies for technology integration.

Activities	Responsible Parties	Timeline
Review current curriculum guides and maps for technology integration.	Curriculum Area Sup; resource teachers; teachers and administrators	7/2010 – 6/2011
Revise current curriculum guides and maps to integrate technology and include written strategies for curriculum integration.	Content area resource teachers and curriculum directors;	7/2010 – 6/2011
Develop new curriculum guides and maps, ensuring that they include written strategies to integrate technology into the curriculum.	Curriculum Area Sup and resource teachers; teachers and administrators	7/2011– 6/2012 for math and science 7/2012-6/2013 for literacy and social studies
Implement the technology-integrated curriculum, focusing first on math and science and then on literacy and social studies courses.	Teachers, resource teachers, administrators	9/2010 – 6/2015, then annually with quarterly reviews

Benchmarks:
- By 6/2011, 20% of district curriculum guides and maps will include written strategies for technology integration as measured by reviews of the curriculum guides and maps to identify whether they include written strategies for technology integration.

- By 6/2012, 40% of district curriculum guides and maps will include written strategies for technology integration as measured by reviews of the curriculum guides and maps to identify whether they include written strategies for technology integration.

- By 6/2013, 60% of district curriculum guides and maps will include written strategies for technology integration as measured by reviews of the curriculum guides and maps to identify whether they include written strategies for technology integration.

- By 6/2014, 80% of district curriculum guides and maps will include written strategies for technology integration as measured by reviews of the curriculum guides and maps to identify whether they include written strategies for technology integration.

- By 6/2015, 100% of district curriculum guides and maps will include written strategies for technology integration as measured by reviews of the curriculum guides and maps to identify whether they include written strategies for technology integration.

Target Group:
Target groups for this objective are the teachers and administrators who are participating in the development and review of district curriculum guides and maps, and the students who learn using the integrated technology strategies.

Process for Monitoring:
The Evaluation subcommittee of the Educational Technology Strategic Plan (ETSP) Committee (see page 5, stakeholders) will review reports from the Education Technology Dept. staff that summarize reviews of the district's curriculum guides and maps to determine how many appropriately integrate technology into the curriculum and include written strategies for technology integration. The Evaluation subcommittee will review briefing reports from the Integrated Technology Support Services Department at its quarterly meetings, and will conduct an annual summary review of all activities under each objective to ensure that they have been completed on time, and that the benchmarks identified have been achieved. The Evaluation subcommittee will report its findings to the full ETSP Committee.

Objective 3.d.1.2. **By 6/2015, 80% of all students will demonstrate the ability to utilize grade-level appropriate computer skills and information and communications applications to research and present their work in core content areas.**

Activities	Responsible Parties	Timeline
Identify teacher(s) at i21 sites to serve as Lead Technology Teachers; train the i21 Lead Technology Teachers to help other site teachers integrate technology into their teaching, through demonstrations of teaching, workshops and guided implementation. i21 Lead Technology Teachers work with other teachers at their sites to model the integration of technology into teaching and learning, and to help teachers integrate technology into their teaching.	Ed Tech Resource Teachers, site administrators	8/2010-12/2010 For training; 1/2011 – 6/2011 for coaching and modeling, repeated annually
Teachers integrate technology into their teaching, as modeled by the Lead Technology Teacher and professional development activities. Technology integration activities for students may include using the Internet to research and share information; using technology skills to present, publish and share results of their work; using simulations and applications to enhance higher learning skills.	Teachers Site administrators, i21 Lead Technology Teachers	1/2011-6/2011, then ongoing through 2015, with regular review and evaluation
Review *District Competencies for Technology Proficiency* for specific skills standards for technology at each grade level of the i21 implementation.Identify methods to assess student proficiency in meeting established technology standards.	Education Technology staff, site administrators and teachers	7/2010-6/2013
Assess student's proficiency in meeting the established technology standards for each targeted grade.	CITO, Ed Tech Director, site administrators and teachers, Education Technology staff, Teachers, site administrators	1/2011–6/2011 7/2011-6/2012 Annually, with regular review and evaluation

Benchmarks:
- By 6/2011, 20% of all students will demonstrate the ability to utilize grade-level appropriate computer skills and information and communications applications to research and present their work in core content areas, as measured by the specific assessments conducted for each targeted grade.

- By 6/2012, 30% of all students will demonstrate the ability to utilize grade-level appropriate computer skills and information and communications applications to research and present their work in core content areas, as measured by the specific assessments conducted for each targeted grade.

- By 6/2013, 45% of all students will demonstrate the ability to utilize grade-level appropriate computer skills and information and communications applications to research and present their work in core content areas, as measured by the specific assessments conducted for each targeted grade.

- By 6/2014, 60% of all students will demonstrate the ability to utilize grade-level appropriate computer skills and information and communications applications to research and present their work in core content areas as measured by the specific assessments conducted for each targeted grade.

- By 6/2015, 80% of all students will demonstrate the ability to utilize grade-level appropriate computer skills and information and communications applications to research and present their work in core content areas as measured by the specific assessments conducted for each targeted grade.

Target Group:
The target groups for this objective include students, teachers and site instruction leaders. Key participants include the i21 Lead Technology Teachers and i21teachers, Ed Tech Resource Teachers and administrators.

Process for Monitoring:
The ETSP Evaluation subcommittee will review reports from the Education Technology Dept. staff that summarize Technology Use Survey results, reports from the i21teachers, Education Technology staff and area superintendents concerning the effectiveness of the implementation of the Lead Technology Teacher program. The Evaluation subcommittee also will review reports from the Educational Technology Department staff that summarize data on the assessed proficiency of students at meeting the established technology standards for identified grade levels, as measured by the specific assessments conducted for each targeted grade. The Evaluation subcommittee will conduct a summary review of all activities under this objective to ensure that they have been completed on time, and that the benchmarks identified have been achieved. The Evaluation subcommittee will report its findings to the ETSP Committee.

Goal 3.d.2. Schools will provide quality instructional hardware, software and online learning supports to address the specific needs of identified groups of students who have been targeted for additional learning support.

Objective 3.d.2.1. **By 6/2015, all district schools will provide their students with instructional technology, including hardware, software and online learning tools that provides access to rich content resources and is aligned to academic content standards.**

Activities	Responsible Parties	Timeline
Evaluate existing and proposed instructional software and online learning tools for quality of resources and alignment to state and district content standards.	CITO, Ed Tech Director, Program Manager Online Learning, resource teachers, site admin, site teachers, Instructional Media Center staff, area superintendents	7/2010-2/2011, then ongoing through 6/2015
Evaluate existing and proposed instructional software and online learning tools for technical feasibility, support requirements, and cost and benefit; advise site administrators.	CITO, Ed Tech Director, Program Manager Online Learning, resource teachers, Site admin, technical support staff, area superintendents	7/2010-4/2011, then ongoing through 6/2015
Select the optimal products and resources for their schools, based on student achievement information and input from district instructional and technical support staff.	CITO, Ed Tech Director, Program Manager Online Learning, resource teachers, Curriculum specialist, Site admin, Area superintendents	4/2011-8/2011, then ongoing through 6/2015
Install software and links to online learning resources and materials. Increase high speed bandwidth to 100-500 MB for all district sites.	ITSS Technical support staff, site administrators and teachers	7/2011-6/2012 Then ongoing
Organize instructional schedules to facilitate student access to instructional resources.	School site administrators	11/2010–1/2011 Repeated sem. through 6/2015
Students utilize instructional technology to access rich content resources aligned with academic content standards. Technology to be utilized may include mobile computers, Internet access, word processing, spreadsheet, and academic subject-specific software applications.	Teachers, site administrators	9/2011 – 6/2012 Then ongoing through 6/2015

Benchmarks:
- By 6/2011, 40% of district schools will provide their students with instructional technology, including hardware, software and online learning tools, that provides access to rich content resources and are aligned to academic content standards. Student access to instructional technology will be measured through annual school site reports and inventories, and data reported to the State Technology Survey (if operating).

- By 6/2012, 50% of district schools will provide their students with instructional technology, including hardware, software and online learning tools, that provides access to rich content resources and are aligned to academic content standards. Student access to instructional technology will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2013, 65% of district schools will provide their students with instructional technology, including hardware, software and online learning tools, that provides access to rich content resources and are aligned to academic content standards. Student access to instructional technology will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2014, 80% of district schools will provide their students with instructional technology, including hardware, software and online learning tools, that provides access to rich content resources and are aligned to academic content standards. Student access to instructional technology will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2015, 100% of district schools will provide to their teachers instructional technology, including hardware, software and online learning tools, that provides access to rich content resources and are aligned to academic content standards. Student access to instructional technology will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

Target Group:
The target group for this objective is students, their teachers and site administrators.

Process for Monitoring:
The ETSP Evaluation subcommittee will review reports from the Education Technology Dept. staff that summarize annual site reports and inventories of technology hardware and software acquired, plus the site technology data reported to the State Technology Survey. The Evaluation subcommittee will review the briefing reports provided by the Education Technology Dept. on a quarterly basis, and will then review the annual site reports and inventories at their summary evaluation meeting to be held each summer, at which time they will evaluate the achievement of annual benchmarks for providing technology tools to students. The Evaluation Committee will then forward its findings to the full ETSP committee.

Objective 3.d.2.2. **By 6/2015, all district schools will acquire and implement the use of software and online learning tools designed to assist students who are not yet proficient in grade-level standards in reading, writing and mathematics.**

Activities	Responsible Parties	Timeline
Evaluate existing and proposed instructional software and online learning tools designed to assist students who are below grade level in reading, writing and/or math, for quality of resources and alignment to state and district content standards	Area superintendents, site administrators, resource teachers, site teachers, Program Manager Online Learning, CITO and Ed Tech Director	7/2010-2/2011, then ongoing as needed through 6/2015
Evaluate existing and proposed instructional software and online learning tools designed to assist students who are below grade level in reading, writing and/or math, for technical feasibility, support requirements, and cost and benefit; advise site administrators.	Program Manager Online Learning, Ed Tech resource teachers, district technical support staff, teachers, CITO	8/2010-4/2011, then ongoing through 6/2015
Select the optimal products and resources designed to assist students who are achieving below grade level, based on student achievement information and input from district instructional and technical support staff.	Site admin, Area Sups, resource teachers, i21 Lead Teachers, teachers	4/2011-6/2011, then ongoing review each year through 6/2015
Install software and links to online learning resources and materials (such as ProQuest, Thomson Gale, MyAccess). Increase high speed bandwidth to 100-500 MB for all district sites.	ITSS district technical support staff, Ed Tech staff	5/2011-8/2011 Then repeated as needed
Organize instructional schedules to facilitate student access to instructional resources.	School site administrators, with input from teachers and i21Lead Technology Teachers	12/2010– 1/2011, then ongoing each semester through 6/2015
Students utilize the online learning and other instructional resources provided to help them develop their reading, writing and mathematics proficiency.	Teachers; site administrators; i21Lead Technology Teachers	1/2011 – 6/2011 then ongoing annually

Benchmarks:
- By 6/2011, 40% of district schools will acquire and implement software and online learning tools designed to assist students who are not yet proficient in grade-level standards in reading, writing and/or mathematics. Student access to the instructional resources will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2012, 50% of district schools will acquire and implement software and online learning tools designed to assist students who are not yet proficient in grade-level standards in reading, writing and/or mathematics. Student access to the instructional resources will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2013, 60% of district schools will acquire and implement software and online learning tools designed to assist students who are not yet proficient in grade-level standards in reading, writing and/or mathematics. Student access to the instructional resources will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2014, 80% of district schools will acquire and implement software and online learning tools designed to assist students who are not yet proficient in grade-level standards in reading, writing and/or mathematics. Student access to the instructional resources will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2015, 100% of district schools will acquire and implement software and online learning tools designed to assist students who are not yet proficient in grade-level standards in reading, writing and/or mathematics. Student access to the instructional resources will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

Target Group:
The target groups for this activity include students who are not yet proficient in grade-level standards in reading, writing and/or mathematics, teachers who teach reading, math and related subjects, and their site administrators.

Process for Monitoring:
The ETSP Evaluation subcommittee will review reports from the Integrated Technology Support Services Department staff that summarize school and district reports (submitted at the end of each year) concerning the software and online learning tools that have been acquired and implemented. The Educational Technology Dept. will summarize the annual site technology data reported to the State Technology Survey each year. Each summer the Evaluation subcommittee will review the end-of-year data and the annual State Technology Survey results to assess the achievement of annual benchmarks for implementing technology tools designed to assist students who are reading below grade level. The Evaluation subcommittee will report its findings to the ETSP Committee.

3.e. List of clear goals, measurable objectives, annual benchmarks, and an implementation plan detailing how and when students will acquire the technology skills and information literacy skills needed to succeed in the classroom and the workplace.

SDUSD is creating the 21st Century (i21) Interactive Classroom, an engaging interconnected learning environment designed to optimize student access and participation by integrating mobile computing, audio, visual and formative assessment technologies across the curriculum. The i21 classroom is both relevant and advanced in technology implementation that maximizes flexibility and provides just-in-time functionality for student learning. The essential tools of the i21 classroom include the pairing of Interactive White Board (IWB) technology with student computers (Netbooks) to increase the ability to teach with technology and to optimize student access and engagement. These tools allow the teacher to configure the learning environment according to the context of the student-centric work at hand to meet state standards and learn 21st century technology and information literacy skills.

> Goal 3.e.1. Students will acquire the technology and information literacy skills required to meet district technology skill standards and graduation requirements.

Objective 3.e.1.1. **By 6/2015, 100% of district students will receive instruction through integration of technology in the academic content areas to become proficient with the technological literacy skills in the district scope and sequence at the 8th grade.**

Activities	Responsible Parties	Timeline
Teachers will collaborate with their school's i21 Lead Technology Teacher and other grade level teachers/content site teams to develop strategies to appropriately integrate technology into their lesson plans and classroom activities.	i21Lead Technology Teachers, site administrators, resource teachers, Ed Tech Team, Library Media teachers, site teachers	1/2011-6/2011, then ongoing through 6/2015
Teachers will implement the strategies they have developed to provide training to their students through the content areas, so that students become proficient in the information and technological literacy skills at their appropriate grade level.	Teachers, Site administrators, i21 Lead Technology Teachers	1/2011-6/2011, then ongoing through 6/2015
Teachers review their progress and student outcomes with their site administrators. Needs for training, technical assistance and support are identified.	Teachers, Site admin, in collaboration with i21 Lead Technology Teachers	2/2011-8/2011, then annually at the end of each semester

Assistance and training is provided to teachers as needed to help them appropriately integrate i21 technology into their classes to ensure that students become proficient in the information and technological literacy skills at their appropriate grade level. Technology integration activities for students may include: • Using the Internet to research topics and share information • Learning skills in word processing • Using technology to present information	Ed Tech Team, i21 Lead Technology Teachers, resource teachers, Library Media Teachers, site administrators, teachers	1/2011-6/2011, then provided on an ongoing basis through 6/2015

Benchmarks:
• By 6/2011, 20% of students will receive instruction through integration of technology in the academic content areas to become proficient with the information and technological literacy skills in the district scope and sequence at 8th grade, as measured by assessment of students' technology literacy skills in grade 8.

• By 6/2012, 40% of students will receive instruction through integration of technology in the academic content areas to become proficient with the information and technological literacy skills in the district scope and sequence at 8th grade, as measured by assessment of students' technology literacy skills in grade 8.

• By 6/2013, 60% of students will receive instruction through integration of technology in the academic content areas to become proficient with the information and technological literacy skills in the district scope and sequence at 8th grade, as measured by assessment of students' technology literacy skills in grade 8.

• By 6/2014, 80% of students will receive instruction through integration of technology in the academic content areas to become proficient with the information and technological literacy skills in the district scope and sequence at 8th grade, as measured by assessment of students' technology literacy skills in grade 8.

• By 6/2015, 100% of students will receive instruction through integration of technology in the academic content areas to become proficient with the information and technological literacy skills in the district scope and sequence at 8th grade, as measured by assessment of students' technology literacy skills in grade 8.

Target Group:
The target groups for this objective includes K-12 students, teachers and site administrators who utilize the district technology skills standards in curriculum development and classroom activities.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review summary reports from Education Technology Department staff that summarize yearly reports from site administrators, the

EdTechProfile survey, and technology data reported to the State Technology Survey each year. The Evaluation subcommittee will use this data to assess the amount of training students have received to become proficient with district information and technological literacy skills standards. The subcommittee also will review changes in scores on assessments of students' technology literacy skills at grade 8 to assess the instruction that students received, and will report its findings to the ETSP Committee.

Goal 3.e.2. Students will demonstrate the information technology skills appropriate to their grade level and assignments to effectively research a variety of media, determine the validity and perspective of the research, aggregate data, present their outcomes and predict outcomes.

Objective 3.e.2.1. **By 6/2015, 100% of district students will receive instruction through integration of technology in the academic content areas to become proficient with the information literacy skills in the district scope and sequence at the 8th grade.**

Activities	Responsible Parties	Timeline
Teachers will collaborate with their school's i21 Lead Technology Teacher and other grade level teachers/content site teams to develop strategies to appropriately integrate technology into their lesson plans and classroom activities.	i21 Lead Technology Teachers; site administrators; resource teachers; Library Media teachers; site teachers	1/2011-6/2011, then ongoing through 6/2015
Teachers will implement the strategies they have developed to provide training to their students through the content areas, so that students become proficient in the information literacy skills at their appropriate grade level.	Teachers, Site administrators, i21 Lead Technology Teachers	1/2011-6/2011, then ongoing through 6/2015
Teachers review their progress and student outcomes with their site administrators. Needs for training, technical assistance and support are identified.	Teachers Site administrators Curriculum specialist, in collaboration with i21 Lead Technology Teachers	2/2011-8/2011, then annually at the end of each semester
Assistance and training is provided to teachers as needed to help them appropriately integrate i21 technology into their classes to ensure that students become proficient in the information literacy skills at their appropriate grade level. Technology integration activities for students may include: • Using the Internet to research topics and share information • Learning skills in word processing • Using technology to present information	i21 Lead Technology Teachers; resource teachers; Library Media Teachers; site administrators; teachers	1/2011-6/2011, then provided on an ongoing basis through 6/2015

Benchmarks:
- By 6/2011, 20% of students will receive instruction through integration of technology in the academic content areas to become proficient with the information literacy skills in the district scope and sequence at 8th grade, as measured by assessment of students' information literacy skills in grade 8.

- By 6/2012, 40% of students will receive instruction through integration of technology in the academic content areas to become proficient with the information literacy skills in the district scope and sequence at 8th grade, as measured by assessment of students' information literacy skills in grade 8.

- By 6/2013, 60% of students will receive instruction through integration of technology in the academic content areas to become proficient with the information literacy skills in the district scope and sequence at 8th grade, as measured by assessment of students' technology literacy skills in grade 8.

- By 6/2014, 80% of students will receive instruction through integration of technology in the academic content areas to become proficient with the information literacy skills in the district scope and sequence at 8th grade, as measured by assessment of students' information literacy skills in grade 8.

- By 6/2015, 100% of students will receive instruction through integration of technology in the academic content areas to become proficient with the information literacy skills in the district scope and sequence at 8th grade, as measured by assessment of students' information literacy skills in grade 8.

Target Group:
The target groups for this objective include K-8 students, teachers and site administrators who utilize the district technology skills standards in curriculum development and classroom activities.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review summary reports from Education Technology Department staff that summarize semester reports from site administrators, the EdTechProfile survey, and technology data reported to the State Technology Survey each year. The Evaluation subcommittee will use this data to assess the amount of training students have received to become proficient with district information and technological literacy skills standards. The subcommittee also will review changes in scores on assessments of students' information literacy skills at grade 8 to assess the instruction that students received, and will report its findings to the ETSP Committee.

3f. List of goals and an implementation plan that describe how the district will address the appropriate and ethical use of information technology in the classroom so that students and teachers can distinguish lawful from unlawful uses of copyrighted works, including the following topics: the concept and purpose of both copyright and fair use; distinguishing lawful from unlawful downloading and peer-to-peer file sharing; and avoiding plagiarism.

SDUSD has identified a wide range of instructional materials that address the appropriate and ethical use of information technology in the classroom, and will have links to information resources for parents, students and teachers on the district website. Teachers will receive informational materials about the appropriate and ethical use of information technology, curriculum materials on the subject for use in their classroom, and formal training in the appropriate and ethical use of information technology during the district's ongoing Educational Technology training sessions. Teachers will integrate instruction in the appropriate and ethical use of information technology into their classroom lessons and activities.

> Goal 3.f.1. Students will receive instruction in the appropriate and ethical use of information technology including the concept and purpose of both copyright and fair use, and the need to refrain from copyright infringement, plagiarism and illegal file sharing/downloading.

Objective 3.f.1.1. **By 6/2015, 100% of district students will report via a student technology survey that they have received instruction regarding the appropriate and ethical use of information technology in the classroom so that students can distinguish lawful from unlawful uses of copyrighted works.**

Activities	Responsible Parties	Timeline
Develop informational materials on the appropriate and ethical use of information technology; integrate this information into the curriculum across the content areas.	Educational Technology Resource Teachers; Curriculum specialist; i21 Lead Technology Teachers	7/2010-12/2010, then ongoing through 6/2015
Distribute informational materials on the appropriate and ethical use of information technology to all teachers for use in the classroom. Provide more in-depth training in the appropriate and ethical use of information technology during regular Educational Technology training sessions.	Site administrators i21 Lead Technology Teachers Educational Technology Resource Teachers Teachers	7/2010-12/2011, then ongoing through 6/2015
Implement instruction in the appropriate and ethical use of information technology in grades 3-12.	Teachers Site administrators i21 Lead Technology Teachers	1/2011-6/2011, then annually

Benchmarks:
- By 6/2011, 20% of district students will report via a student technology survey that they have received instruction regarding the appropriate and ethical use of information technology in the classroom so that students can distinguish lawful from unlawful uses of copyrighted works.

- By 6/2012, 40% of district students will report via a student technology survey that they have received instruction regarding the appropriate and ethical use of information technology in the classroom so that students can distinguish lawful from unlawful uses of copyrighted works.

- By 6/2013, 60% of district students will report via a student technology survey that they have received instruction regarding the appropriate and ethical use of information technology in the classroom so that students can distinguish lawful from unlawful uses of copyrighted works.

- By 6/2014, 80% of district students will report via a student technology survey that they have received instruction regarding the appropriate and ethical use of information technology in the classroom so that students can distinguish lawful from unlawful uses of copyrighted works.

- By 6/2015, 100% of district students will report via a student technology survey that they have received instruction regarding the appropriate and ethical use of information technology in the classroom so that students can distinguish lawful from unlawful uses of copyrighted works.

Target Group:
The target groups for this objective include students and the teachers and site administrators who incorporate information about appropriate and ethical use of information technology in curriculum development and classroom activities.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review reports from Education Technology Department staff that summarize yearly reports from site administrators and the EdTechProfile survey. The Evaluation subcommittee will use this data to assess the amount of training students have received to understand appropriate and ethical use of information technology.

3.g. List of goals and an implementation plan that describe how the district will address Internet safety, including how students and teachers will be trained to protect online privacy and avoid online predators.

To protect students while they are online, SDUSD has implemented an Internet filter and monitoring system that is compliant with the Child Internet Protection Act (CIPA). SDUSD also has identified a wide range of materials that address Internet safety, including the information provided by the federal government and the technology industry available at www.onguardonline.gov. This website provides a guide for parents to talk with their children about Internet safety. SDUSD will provide links to information resources on Internet safety for parents, students and teachers on the district website. Parents also receive information about Internet safety and SDUSD Acceptable Use policies in the *Facts for Parents* handbook distributed to parents each year. All parents of students under age 18 and students over age 18 are required to sign the "Student Connect Responsibility Contract."

Teachers will receive informational materials about the Internet safety, protecting online privacy and avoiding online predators, curriculum materials on the subject for use in their classroom, and formal training in Internet safety during the district's ongoing Educational Technology training sessions. Teachers and counselors may also attend training sessions on Internet safety offered by the San Diego Police Foundation. Teachers will integrate instruction in Internet safety into their classroom lessons and activities.

> Goal 3.g.1. Students will receive instruction in Internet safety, and will use those skills to help protect their online privacy and avoid online predators.

Objective 3.g.1.1. **By 6/2015, 100% of district students will report via a student technology survey that they have received instruction regarding Internet safety, protecting online privacy and avoiding online predators.**

Activities	Responsible Parties	Timeline
Develop informational materials on Internet safety; integrate this information into the grades 3-12 curriculum across the content areas. Post information for teachers, parents and students on the district website. Parents sign a "Student Connect Responsibility Contract" agreeing to the district's Internet Use and safety plan.	Manager of Online Learning Educational Technology Resource Teachers; i21 Lead Technology Teachers	7/2010-12/2010, then ongoing through 6/2015

Distribute informational materials on Internet safety to all teachers for use in the classroom. Provide more in-depth training on Internet safety during regular Educational Technology training sessions.	Site administrators i21 Lead Technology Teachers Educational Technology Resource Teachers Classroom Teachers	7/2010-8/2011, then ongoing through 6/2015
Implement instruction in Internet safety, protecting online privacy and avoiding online predators in grades 3-12.	Teachers Site administrators i21 Lead Technology Teachers	9/2010-6/2011, then annually

Benchmarks:
• By 6/2011, 20% of district students will report via a student technology survey that they have received instruction regarding Internet safety, protecting online privacy and avoiding online predators.

• By 6/2012, 40% of district students will report via a student technology survey that they have received instruction regarding Internet safety, protecting online privacy and avoiding online predators.

• By 6/2013, 60% of district students will report via a student technology survey that they have received instruction regarding Internet safety, protecting online privacy and avoiding online predators.

• By 6/2014, 80% of district students will report via a student technology survey that they have received instruction regarding Internet safety, protecting online privacy and avoiding online predators.

• By 6/2015, 100% of district school students will report via a student technology survey that they have received instruction regarding Internet safety, protecting online privacy and avoiding online predators.

Target Group:
The target groups for this objective include students and the teachers and site administrators who incorporate information about Internet safety in curriculum development and classroom activities.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review reports from Education Technology Department staff that summarize yearly reports from site administrators and the EdTechProfile survey. The Evaluation subcommittee will use this data to assess the amount of training students have received to understand Internet safety, protecting online privacy and avoiding online predators.

3.h.   Description of or goals about the district policy or practices that ensure equitable technology access for all students.

The 21st Century (i21) Interactive Classroom is designed to optimize student access and participation by integrating mobile computing, audio, visual and formative assessment technologies across the curriculum. The essential tools of the i21 classroom include the pairing of Interactive White Board (IWB) technology with student computers (Netbooks) to increase the ability to teach with technology and to optimize student access and engagement. These tools allow the teacher to configure the learning environment according to the context of the student-centric work at hand to meet state standards and learn 21st century skills as thinkers, creators, designers and builders.

The 21st Century (i21) Interactive Classroom Initiative will be implemented in the district using a multi-phased grade level approach that will allow students beginning in grades 3 and 6 to access a consistent and equitable 21st century learning environment as they move from one grade to the next. The implementation plan in grades 9-12 will use a department by department model that will provide all students access to technology rich learning environments beginning the first year.

Goal 3.h.1. Students will have access to existing technology resources that are suitable to their specific educational needs and address the specific content standards.

Objective 3.h.1.1   **By 6/2015, 100% of district students will have access to additional technology resources that are specific to their educational needs and that address the content area standards.**

Activities	Responsible Parties	Timeline
Evaluate existing and proposed technology resources designed to assist students to meet their specific educational needs, for quality of resources and alignment to state and district content standards	Site administrators; Area Sups; Education Tech resource teachers; site teachers, i21 Lead Technology Teachers	7/2010-12/2010, then ongoing as needed through 6/2015
Evaluate existing and proposed technology resources for technical feasibility, support requirements, and cost and benefit; advise site administrators.	ITSS Division; technical support staff; Education Tech resource teachers;	8/2010 12/2010, then ongoing as needed through 6/2015
Select the optimal products and resources for schools, based on student achievement information and input from district instructional and technical support staff.	Ed Tech Director, Site administrators, Area Sups, Ed Tech resource teachers, i21 Lead Technology Teachers	12/2010-6/2011 then ongoing as needed through 6/2015

Install software and links to online learning resources and materials. Increase high speed bandwidth to 100-500 MB for all district sites	ITSS Dept; Tech support staff; & teachers	12/2010-6/2011 then ongoing as needed
Organize instructional schedules to facilitate student access to instructional resources.	School site administrators	12/2010–6/2011 Then ongoing
Students utilize instructional technology resources specific to their educational needs to access rich content resources that are aligned with academic content standards. Resources may include ProQuest e-library programs, Thomson Gale databases, MyAccess writing development programs, multimedia development programs, digital lockers, others	Teachers, resource teachers, site administrators, i21 Lead Technology Teachers	1/2011–6/2011 Then ongoing annually through 6/2015

Benchmarks:
- By 6/2011, 40% of district students will have access to additional technology resources that address content area standards and are specific to their educational needs. Student access to technology resources will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2012, 50% of district students will have access to additional technology resources that address content area standards and are specific to their educational needs. Student access to technology resources will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2013, 65% of district students will have access to additional technology resources that address content area standards and are specific to their educational needs. Student access to technology resources will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2014, 80% of district students will have access to additional technology resources that address content area standards and are specific to their educational needs. Student access to technology resources will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

- By 6/2015, 100% of district students will have access to additional technology resources that address content area standards and are specific to their educational needs. Student access to technology resources will be measured through annual school site reports and inventories, and data reported to the State Technology Survey.

Target Group:
The target groups for this objective include district students, their teachers and their site administrators.

Process for Monitoring:

The ETSP Evaluation subcommittee members will review summaries of the site technology data reported to the State Technology Survey each year. The Evaluation subcommittee will use this data to assess the achievement of annual benchmarks for implementing technology tools designed to aid student learning. They also will review changes in scores on assessments of students' technology literacy skills and academic achievement at grade 8 to assess student access to technology tools, and impacts on student learning. The Evaluation subcommittee will report its findings to the ETSP Committee.

Objective 3.h.1.2. By 6/2015, all district schools with English Language Learner (ELL) students will implement use of language arts software and online learning tools specifically to assist ELL students.

Activities	Responsible Parties	Timeline
Evaluate existing and proposed instructional software and online learning tools designed to assist ELL students, for quality of resources and alignment to state and district content standards	OLA Director and resource teachers, Area Sups; site administrators; Education Tech resource teachers; i21 Lead Technology Teachers, site teachers	7/2010-12/2010, then ongoing through 6/2015
Evaluate existing and proposed instructional software and online learning tools designed to assist ELL students, for technical feasibility, support requirements, and cost and benefit; advise site administrators.	ITSS Division; District technical support staff; Education Tech resource teachers;	8/2010-12/2010, then ongoing through 6/2015
Select the optimal products and resources designed to assist ELL students for schools, based on student achievement information and input from district instructional and technical support staff.	OLA Director and resource teachers, Area Sups; site administrators; Education Tech resource teachers; i21 Lead Technology Teachers, site teachers	12/2010-2/2011, then ongoing as needed
Install software and links to online learning resources and materials. Increase high speed bandwidth to 100-500 MB for all district sites	ITSS district technical support staff; site administrators and teachers	1/2011-6/2011, then ongoing as needed
Organize instructional schedules to facilitate student access to instructional resources.	School site administrators, with input from teachers and i21 Lead Technology Teachers	12/2010–1/2011, then ongoing each semester through 6/2015
ELL students utilize language arts software and online learning tools (for example, Rosetta Stone software, Accu-Reading programs, Achieva ELA, Compass, other resources identified through the California Learning Resource Network) to enhance their learning of the English language.	Teachers, site administrators	1/2011–6/2011, then ongoing

Benchmarks:
- By 6/2011, 40% of district schools with ELL students will implement language arts software and online learning tools specifically to assist ELL students, as measured by schools' reported use of these tools, site inventories and data reported to the EdTechProfile and State Technology Survey each year.

- By 6/2012, 50% of district schools with ELL students will implement language arts software and online learning tools specifically to assist ELL students, as measured by schools' reported use of these tools, site inventories and data reported to the EdTechProfile and State Technology Survey each year.

- By 6/2013, 60% of district schools with ELL students will implement language arts software and online learning tools specifically to assist ELL students, as measured by schools' reported use of these tools, site inventories and data reported to the EdTechProfile and State Technology Survey each year.

- By 6/2014, 80% of district schools with ELL students will implement language arts software and online learning tools specifically to assist ELL students, as measured by schools' reported use of these tools, site inventories and data reported to the EdTechProfile and State Technology Survey each year.

- By 6/2015, 100% of district schools with ELL students will implement language arts software and online learning tools specifically to assist ELL students, as measured by schools' reported use of these tools, site inventories and data reported to the EdTechProfile and State Technology Survey each year.

Target Group:
This activity is targeted at students who are English Language Learners, their teachers, and their school's administrators.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review briefing reports from the Education Technology Dept. staff that summarize site and district reports of technology acquisition and site technology data reported to the EdTechProfile and State Technology Survey each year. The Evaluation subcommittee will use this information to assess the achievement of annual benchmarks for implementing technology tools designed specifically to assist ELL students, and will report its findings to the ETSP Committee.

Objective 3.h.1.3   **By 6/2015, all district schools will implement use of hardware, software and online learning tools that are designed to meet the needs of Special Education Students, as specified in their Individual Education Plan (IEP).**

Activities	Responsible Parties	Timeline
Evaluate existing and proposed instructional software and online learning tools designed to meet the needs of Special Education students, as identified in their IEP, for quality of resources and alignment to state and district content standards	Special Education administrators & teachers; site administrators; Education Tech resource teachers; i21 Lead Technology Teachers	7/2010-12/2010, then ongoing as needed through 6/2015
Evaluate existing and proposed instructional software and online learning tools designed to meet the IEP-specified needs of Special Education students, for technical feasibility, support requirements, and cost and benefit; advise site administrators.	ITSS Division; district technical support staff; Education Tech resource teachers	8/2010-12/2010, then ongoing through 6/2015
Select the optimal products and resources designed to help meet the identified needs of Special Education students, based on student achievement information and input from district instructional and technical support staff.	Special Education administrators & teachers; site administrators; Education Tech resource teachers; i21 Lead Technology Teachers	12/2010-2/2011, then ongoing as needed
Install software and links to online learning resources and materials. Increase high speed bandwidth to 100-500 MB for all district sites.	ITSS district technical support staff; site administrators and teachers	12/2010-6/2011, then as needed
Organize instructional schedules to facilitate student access to instructional resources.	School site administrators, with input from site Special Education teachers	12/2010–1/2011, then each semester through 6/2015
Special Education students will use the hardware, software and online learning tools identified in their IEP to enhance their learning. They will engage in a variety to technology-enhanced learning activities, such as using the Internet to research topics, using tech skills to publish, present and share information, use simulations to enhance learning skills, etc.	Site Special Education teachers; site administrators	1/2011–6/2011, then ongoing

Benchmarks:
- By 6/2011, 40% of district schools will implement hardware, software and online learning tools that are designed to meet the needs of Special Education Students specified in their IEP, as measured by schools' reported use of these tools, site inventories and data reported to the EdTechProfile and State Technology Survey each year.

- By 6/2012, 50% of district schools will implement hardware, software and online learning tools that are designed to meet the needs of Special Education Students specified in their IEP, as measured by schools' reported use of these tools, site inventories and data reported to the EdTechProfile and State Technology Survey each year.

- By 6/2013, 60% of district schools will implement hardware, software and online learning tools that are designed to meet the needs of Special Education Students specified in their IEP, as measured by schools' reported use of these tools, site inventories and data reported to the EdTechProfile and State Technology Survey each year.

- By 6/2014, 80% of district schools will implement hardware, software and online learning tools that are designed to meet the needs of Special Education Students specified in their IEP, as measured by schools' reported use of these tools, site inventories and data reported to the EdTechProfile and State Technology Survey each year.

- By 6/2015, 100% of district schools will implement hardware, software and online learning tools that are designed to meet the needs of Special Education Students specified in their IEP, as measured by schools' reported use of these tools, site inventories and data reported to the EdTechProfile and State Technology Survey each year.

Target Group:
This target groups for this objective include Special Education students, their teachers and site administrators.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review regular briefing reports from the Education Technology Dept. staff that summarize site and district Special Education reports and technology data reported to the State Technology Survey each year. The Evaluation subcommittee will use this information to assess the achievement of annual benchmarks for implementing technology tools designed to help Special Education students, as specified in their Individual Education Plan (IEP), and will report its findings to the ETSP Committee.

3.i. List of clear goals, measurable objectives, annual benchmarks, and an implementation plan to use technology to make student record keeping and assessment more efficient and supportive of teachers' efforts to meet individual student academic needs.

SDUSD has begun the process of developing the integrated information system and content management system that will provide online access to educational resources, tools and information for teachers, students, administrators, staff, parents and community members. The integrated information system and content management system make student record keeping and assessment more efficient. Data warehouses will provide access to student information and business operations. The district has implemented student information system applications and software for human resources, financial management, and procurement business applications. A content management system has been implemented to provide online access to educational resources, tools and information for teachers, students, administrators, staff, parents and community members. This content management system works with the integrated information system, and will provide user access to that system through district-wide Applications (DWA). The Content Management System (CMS) provides two key functions:

(1)   The CMS centralizes all district information and content, and then delivers that information to individual users based on their roles, rights and responsibilities. It allows display of only useful, relevant content, and automates business processes while maintaining accountability. The CMS will provide access to business applications, district news and information, employment information, email, digital storage, professional development and training, and online collaboration tools such as video streaming and conferencing and content resources for curriculum development.

(2)   The CMS enables teachers and staff to create, edit and manage their own content and publish it to the Web without special equipment or expertise. This automated publishing function will be forms-based for consistency and ease of use.

Once it has been fully implemented, the CMS will provide employee access to business applications and communications; administrator access to educational administration applications (school, department information; student academic achievement, etc.); teacher access to educational administration applications (attendance, grading, etc.); teacher access to educational technology applications (such as website development) and support; and student access to educational technology applications and support, including teacher's class websites. The district's information system applications are described in more detail in Section 5 of this Plan.

Goal 3.i.1. Use technology to make record keeping and assessment more efficient and to deliver student information, including assessment data, to make data-driven instructional decisions.

Objective 3.i.1.1. **By 6/2015, 80% of teachers will use available data from the student assessment database to develop and improve instructional strategies for individuals and groups of students.**

Activities	Responsible Parties	Timeline
Complete installation of 10 GB district Backbone and 100-500 MB network access at all district instructional sites.	District ITSS Division and Facilities staff	7/2010 – 6/2011
Ensure that every district teacher has a computer with Broadband Internet access for use in classroom management, including obtaining assessment data on students.	District ITSS Division staff	7/2010 – 5/2011
Implement the student information software (Zangle) and data warehouse components of the integrated information system; install and troubleshoot system; upload data and implement system. Train teachers to use system to take attendance, enter grades and access student assessment data.	District ITSS Division Site administrators; ITSS trainers	7/2011 – 6/2012
Train teachers and site administrators to utilize the information accessed when developing instructional strategies for individuals and groups of students.	Area Sups; Site administrators, Research & Eval. staff; training contractors	7/2013-6/2014
Teachers and site administrators use information accessed through the integrated information system to develop instructional strategies for their students. These strategies may include: • Using simulations and applications • Use technology to develop computation skills • Use word processing, spreadsheets and presentation software.	Teachers, site administrators	1/2014-6/2015

Benchmarks:
- By 6/2011, 70% of teachers will enter attendance and grade data online, as measured by reports from the district ITSS Division.
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    - By 6/2012, 100% of teachers will enter attendance and grade data online, as measured by reports from the district ITSS Division.

    - By 6/2013, 20% of teachers will use available data from the student assessment database to inform instructional strategies for individuals and groups of students, as measured by teacher surveys and database system usage data.

    - By 6/2014, 50% of teachers will use available data from the student assessment database to inform instructional strategies for individuals and groups of students, as measured by teacher surveys and database system usage data.

    - By 6/2015, 80% of teachers will use available data from the student assessment database to inform instructional strategies for individuals and groups of students, as measured by teacher surveys and database system usage data.

Target Group:
The target groups for this objective include district students and their teachers.

Process for Monitoring:
The ETSP Evaluation subcommittee will review briefing reports from the Education Technology Dept. staff that summarize student assessment database system reports of teacher and administrator use, EdTechProfile surveys and student outcome data. The Evaluation subcommittee will use this data to assess the achievement of the annual benchmarks for using student assessment data to develop and improve instructional strategies for individuals and groups of students, and will report its findings to the ETSP Committee.

3.j. List of clear goals, measurable objectives, annual benchmarks, and an implementation plan to use technology to improve two-way communication between home and school.

SDUSD has begun the process of developing the integrated information system and content management system that will provide online access to educational resources, tools and information for teachers, students, administrators, staff, parents and community members. Once it has been fully implemented, the Content Management System (CMS) will provide parent access to district, school, classroom and student information; and community access to district and school information; and student access to educational technology applications and support, including teacher's class websites. The district's Content Management System (CMS) and other information system applications are described in more detail in Section 5 of this Plan.

Goal 3.j.1. Modern voice and electronic communications systems (particularly email) will facilitate communication and interaction among parents, teachers, administrators, students and the community.

Objective 3.j.1.1   **By 6/2015, 100% of teachers and administrators will respond to email and voicemail message from parents.**

Activities	Responsible Parties	Timeline
Complete installation of internet 10 GB district Backbone and 100-500 MB network access at all district instructional sites.	District ITSS Division and Facilities staff	7/2010 – 6/2011
Implement the VOIP component of the integrated information system; install and troubleshoot system; implement system.	District ITSS Division staff	7/2010 – 6/2011, then ongoing installation through 6/2015
Develop training materials on the use of the VOIP telephone and its functions, including voicemail	District ITSS Division; Communications Dept. staff	7/2010 – 1/2011
Ensure that every district classroom has a telephone with VOIP access.	District ITSS Division	7/2010–6/2012, then ongoing
Ensure that every district teacher has a computer with Internet access and an email account.	District ITSS Division	7/2010 – 6/2011 Then ongoing
Collate email account information and provide it to district and site technicians for publication. Post email account listings on the district and school websites.	District ITSS Communications Dept. Site administrators	1/2011 – 6/2011 Then ongoing

Train teachers and site administrators to use email system and the VOIP telephones and their communication functions.	District ITSS training staff; Communications Dept. staff	1/2011-12/2011 then ongoing
Teachers and site administrators use email and the VOIP telephone systems to communicate with parents, students, colleagues and community members.	Teachers, site technical staff and administrators	1/2011-6/2015

Benchmarks:
- By 6/2011, 60% of teachers and administrators will respond to email messages from parents, as measured by staff reports, EdTechProfile survey results and parent and student feedback.

- By 6/2012, 70% of teachers and administrators will respond to email messages from parents, as measured by staff reports, EdTechProfile survey results and parent and student feedback.

- By 6/2013, 80% of teachers and administrators will respond to email messages from parents, as measured by staff reports, EdTechProfile survey results and parent and student feedback.

- By 6/2014, 90% of teachers and administrators will respond to email messages from parents, as measured by staff reports, EdTechProfile survey results and parent and student feedback.

- By 6/2015, 100% of teachers and administrators will respond to email messages from parents, as measured by staff reports, EdTechProfile survey results and parent and student feedback.

Target Group:
The target groups for this activity include teachers, parents, students, community members and site administrators.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review annual reports that compare staff listings and district and site websites to determine whether the email addresses and voicemail numbers for all teachers and administrators are published on district or school websites. The Evaluation subcommittee also will review reports from the Education Technology Dept. staff that summarize State Technology Survey and EdTechProfile Technology use survey results and parent and student feedback to assess teacher and administrator use of email and voicemail systems and responses to messages left by parents. The Evaluation subcommittee will use this information to assess the achievement of the annual objectives, and will report its findings to the ETSP Committee.

> Goal 3.j.2. The district central office and individual schools will use the World Wide Web to communicate with parents.

Objective 3.j.2.1 **By 6/2015, 100% of district schools and departments will develop and maintain websites (conforming to the district's minimum school website standards) to publish current school and district information.**

Activities	Responsible Parties	Timeline
Complete installation of internet 10 GB district Backbone and 100-500 MB network access at all district instructional sites.	District ITSS Division and Facilities staff	7/2010 – 6/2011
Ensure that every district school and department has a computer with Internet access and the software needed to develop a webpage.	District ITSS Division staff	7/2010 – 5/2011
Implement the Content Management System (the user access component of the integrated information system) to provide access to website development resources; install and troubleshoot system; implement system.	District ITSS Division staff	7/2011 – 6/2011
Train school site and department staff and administrators to use the website development resources to create school site or department web pages that conform to the district's minimum website standards.	District ITSS Training Department; Communications Dept.	7/2010-6/2012
Site staff and administrators use Content Management System component of the integrated information system to create school site and department web pages to publish current school or district information.	Site staff and administrators; Ed Tech Team; Communications Dept.	7/2010-6/2011, then ongoing annually as needed
A log of the completed and accessible websites is maintained, with new schools added as they complete their website	Communications Dept.	1/2013-6/2014, then ongoing, updated regularly

Benchmarks:
- By 6/2011, 30% of district schools and departments will develop and maintain websites to publish current school and district information (Content Management System is implemented in 2009).

- By 6/2012, 40% of district schools and departments will develop and maintain websites to publish current school and district information (Content Management System is implemented in 2009).

- By 6/2013, 80% of district schools and departments will develop and maintain websites to publish current school and district information.

- By 6/2014, 90% of district schools and departments will develop and maintain websites to publish current school and district information.

- By 6/2015, 100% of district schools and departments will develop and maintain websites to publish current school and district information.

Target Group:
The target groups for this objective include students, parents, and department and site staff and administrators.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review district reports, district office and school site websites, and State Technology Survey and EdTechProfile survey results to determine whether the district departments and school sites have created websites to publish current information, and whether they conform to district website standards. The Evaluation subcommittee will report its findings to the ETSP Committee.

> Goal 3.j.3. Teachers will use an education information portal and content management system to develop educational information about the classroom and increase communication with parents and students.

Objective 3.j.3.1   **By 6/2015, 80% of all district teachers will develop and maintain a teaching website to publish classroom and course information for students and parents. All websites will conform to district minimum website standards; no website will publish any private student information.**

Activities	Responsible Parties	Timeline
Complete installation of internet 10 GB backbone and 100-500 MB network access at all district instructional sites.	District ITSS and Facilities staff	7/2010 – 6/2011
Ensure that every district teacher has a computer with Internet access and the software needed to develop a webpage.	District ITSS Division staff	7/2010 – 5/2011
Implement the content management system, the user access component of the integrated information system, to provide access to website development resources; install and troubleshoot system; implement system.	District ITSS Division Educational Technology Team; Communications Dept.	7/2010 – 6/2011
Train teachers to use the website development resources to create classroom web pages (that meet district website standards) for dissemination of information about instruction and activities.	District ITSS Trainers; Communications Dept. Ed Tech Team	7/2010-6/2011 then ongoing
Teachers use the Content Management System to create teaching websites to publish classroom and course information for students and parents. Examples of the information that could be presented include class and homework assignments, links to instructional resources and materials, information about upcoming events such as field trips, and testing and assessment schedules.	Teachers and site administrators	8/2010-6/2011, then ongoing each semester through 6/2015

Benchmarks:
- By 6/2011, 20% of all district teachers will develop and maintain a teaching website to publish class information for students and parents, as measured by staff reports, site websites and EdTechProfile survey results.

- By 6/2012, 40% of all district teachers will develop and maintain a teaching website to publish class information for students and parents, as measured by staff reports, site websites and EdTechProfile survey results.

- By 6/2013, 60% of all district teachers will develop and maintain a teaching website to publish class information for students and parents, as measured by staff reports, site websites and EdTechProfile survey results.

- By 6/2014, 70% of all district teachers will develop and maintain a teaching website to publish class information for students and parents, as measured by staff reports, site websites and EdTechProfile survey results.

- By 6/2015, 80% of all district teachers will develop and maintain a teaching website to publish class information for students and parents, as measured by staff reports, site websites and EdTechProfile survey results.

Target Group:
The target groups for this objective include students, parents, teachers, site staff and site administrators.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review regular Education Technology staff briefings that summarize EdTechProfile survey results and staff reports on teacher and school websites to determine how many district teachers have developed and maintain a teaching website to publish class information for students and parents. The Evaluation subcommittee will report its findings to the ETSP Committee.

3.k. Description of the process that will be used to monitor the Curricular Component goals, objectives, benchmarks, and planned implementation activities including roles and responsibilities.

The Educational Technology Strategic Plan (ETSP) Committee will be established to provide oversight to the implementation of the technology plan and to evaluate its impact of district goals for student learning and classroom and school management. The ETSP Committee will include representatives of each stakeholder group, including students, parents, teachers, staff, administrators and community members. The ETSP Committee will establish an Evaluation subcommittee to review data and program reports collected district staff to determine whether the ETSP is achieving its goals and objectives. The data that will be used in monitoring the achievement of each objective is described in the prior sections.

The Educational Technology Director will serve as lead staff to the ETSP Committee, and will be responsible for providing semi-annual briefing reports of progress in implementing the plan and annual data on the impact of technology on student learning and attainment of the district's curriculum goals. The ETSP Evaluation subcommittee will review these reports at each semi-annual evaluation meeting. Each summer, the ETSP Evaluation subcommittee will conduct an in-depth review of all narrative reports, EdTechProfile and State technology Survey results and student achievement data. The ETSP Evaluation subcommittee will use the results of this in-depth review to identify the most successful practices and areas in which challenges have been encountered and improvements are needed, including roles and responsibilities. The Evaluation subcommittee will identify potential improvements that could be made to the Educational Technology Strategic Plan based on their analysis.

The full ETSP Committee will prepare an annual report to be reviewed by the Chief Information and Technology Officer and presented to the Superintendent and Board of Education concerning its findings and recommendations. The ETSP Committee also will share their data and conclusions with all key stakeholders, including teachers, school site administrators, central office staff and administrators, parents, students and community members. Information will be shared through the district Intranet email system, by posting summaries of ETSP Committee findings on the district website, and through ongoing newsletters and other forms of district communications with parents and the community. The results of the evaluation will be shared at Principals' meetings and will be reviewed with site technology teams so that they may make appropriate modifications to their site plans.

4. PROFESSIONAL DEVELOPMENT COMPONENT CRITERIA

SDUSD will utilize as a primary strategy the *Integrated 21st Century (i21) Interactive Classroom Initiative*. Through the i21 Interactive Classroom Initiative, the district has adopted a systemic approach to professional development and a 21st century learning environment that will enable teachers to appropriately integrate technology into instruction in all curricular areas through a variety of interactive technologies and resources designed to be responsive to students' learning needs as well as enable students to meet the NCLB requirement of being technologically proficient by grade 8.

Three foundational cornerstones make up the i21 Interactive Classroom teaching and learning model that supports achievement for all students:

- **21st Century Learning Environment**: The 21st Century Learning Environment creates the opportunity for new learning practices that will support the teaching and learning of 21st century skill outcomes. By providing teachers and students a content rich environment accessed through universal design in quality learning tools and technology resources, all students become expert learners in relevant, real world 21st century contexts.

- **Technological Pedagogical Content Knowledge (TPACK)**: TPACK is a model for i21 Interactive Classroom professional development and is based on the work of Punya Mishra and Matthew J. Koehler from Michigan State University. At the heart of the TPACK framework, is the complex interplay of three primary forms of knowledge: Content (CK), Pedagogy (PK), and Technology (TK). The intersection of all three elements is Technological Pedagogical Content Knowledge (TPACK). True technology integration involves understanding and negotiating the relationships between these three components of knowledge. Effective technology integration for pedagogy around specific subject matter requires developing sensitivity to the dynamic, transactional relationship between all three components.

- **Universal Design for Learning (UDL)**: UDL principles assist educators to customize their teaching for individual differences in the primary brain networks. Professional development will integrate UDL principles to optimize the i21 content-rich learning environment and will empower the teacher to differentiate learning by utilizing technology tools and resources that provide multiple means of representation, expression, and engagement to tap into learners' interests, challenge them appropriately, and motivate them to learn.

The proposed professional development and support plan utilizes a multi-phased approach designed to provide teachers a professional development sequence that is closely connected to the work of the classroom grade or course and develops a sustaining level of support and capacity at each school site. The five key professional development components include:

- **Foundation Training for all Teachers**
  Series of skills-based trainings enables district teachers and administrators to begin using all of the i21 technology as an integrated part of daily teaching and learning.

- **Content Professional Development for all Teachers**
  Once foundational skills have been established, all teachers will work to embed i21 technology within the curriculum content areas.

- **Teacher Leader Professional Development**
  An i21 Lead Teacher from each site that has completed Foundation Training will directly build capacity at their school site.

- **Site Supports and Capacity Building**
  An organized and coordinated network of supports that scales and sustains for academic success at each school site as grade and content area implementation phases begin.

- **Site Review and Evaluation Plan**
  Ed Tech training teams work collaboratively with principals to assess teacher implementation to inform: 1) follow-up training support, 2) recommendations to modify school site plans, and 3) corrective action as needed across *i21* Professional Development and Support Plan.

In support of the district's primary strategy (i21 Initiative) to improve teaching and learning with technology, and in order provide comprehensive support of all instructional objectives as identified by the ETSP, SDUSD will utilize other key strategies to provide professional development opportunities for teachers and staff:

- *Training on the integrated information system.* The Integrated Technology and Support Services (ITSS) Division will provide training on the new software applications for administrators, teachers, and classified staff. A variety of classes using the PeopleSoft applications, student information system software (Zangle) and special education software (Encore) are offered at central sites. The ITSS division also offers online support materials that provide overviews of the PeopleSoft portal, which is the district gateway for accessing the District Wide Applications – including PeopleSoft Financials, HR and EPM, the student information system (Zangle) and special populations software (Encore), Outlook email and calendar, and district news.

- *Online teacher training in the content areas.* The district Educational Technology team and i21 Lead Teachers will develop and provide online training resources for teachers in subjects related to teaching within their content areas.

- *Online training for technology integration.* The Educational Technology Team will provide online training through its website, focusing on how to integrate i21 technology into the classroom. Their "Digital Classroom" program covers a range of topics, including: the technical aspects of use of classroom presentation stations and mobile tablet computers; instructional strategies for use of the classroom computers; integrating office productivity software into the classroom; using digital resources, such as video, multimedia and other

digital media; and inquiry in the classroom, including Internet searching technologies, web resources for curriculum connections, online databases, using the web portal and digital locker (which provide web tools for managing the classroom and digital storage for teachers and students), and how to create effective interactive flipcharts.

- *New teacher induction.* The Beginning Teacher Support and Assessment (BTSA) Induction program is a two-year, job-embedded program designed to ensure professional success. Participating teachers receive on-site support from a trained peer coach/support provider. Additional support comes in the form or coursework and monthly professional development academies. The BTSA program's i21Technology course is designed to meet technology requirements for obtaining a Professional Clear Credential. The BTSA i21 Technology course helps prepare new teachers to utilize effective technology in their content area for students and for their own professional development. The course objectives include having each participating teacher able to: communicate with professional colleagues through a variety of online media; access, discriminate, use and reference information from a variety of online databases; teach an inquiry curriculum based lesson to their students using technology as a presentation tool; teach their students how to access, discriminate, use and reference information from a variety of online databases; access, manipulate, evaluate and use to inform instruction their school-provide student data; and use computer-based programs to grade, evaluate and guide their instruction.

- *Comprehensive training for i21 Lead Technology Teachers.* The Educational Technology Team will provide intensive training and support to i21 Lead Technology Teachers to prepare them to use the i21 technology tools and resources built into their classroom, and to integrate those resources into their teaching. The Educational Technology Center will be kept up to date to provide state-of-the-art facilities for training and technology demonstrations. This training will cover foundational support for teachers (including hardware and software training), technology enhanced instruction, and teaching a technology-integrated curriculum that supports students' development of digital literacy and the appropriate use of technology tools for problem-solving. The training workshops will be followed with in-classroom support for the implementation of the technology-integrated curriculum.

- *Onsite training for teachers and staff during professional development days.* Site principals and other administrators may offer technology-training activities for their teachers and staff during scheduled professional development days. Educational Technology Resource Teachers, i21 Lead Teachers and other district staff or external trainers will be utilized to provide training, based on site needs and schedules.

- *Training for i21 teachers through the SDUSD Discover program.* Certificated staff members who successfully complete this i21 focused program coursework may earn semester unit credit that is applicable toward salary advancement within the district. Staff must pay a fee of $50 per credit unit for these courses; the fee is $10 per unit if they do not elect the salary credit. The district credit courses are equivalent to university credit classes in content, quality and general conduct.Teachers successfully completing the i21 Discovery program will receive a certificate verifying their achievement as a 21st Century Learning Teacher. Online courses focus on the use of Microsoft office software, including Word, Excel, Access,

Outlook, PowerPoint, and Windows. Community members and staff from other districts may take the classes on a space-available basis, and pay higher out-of-district fees.

4.a. Summary of the teachers' and administrators' current technology proficiency and integration skills and needs for professional development.

Teachers' Technology Skills. Approximately 80% of district teachers completed the 2008 EdTechProfile Proficiency Assessment survey. Less than one-third of the teachers who completed the survey rated themselves as proficient in general computer skills; over half (54%) rated themselves as intermediate in general computer skills. Teachers are most likely to rate themselves proficient in using word processing software (46% said they were proficient, and another 38% rated themselves as intermediate). Overall, teachers were much less likely to rate themselves as proficient or intermediate in skills in using databases and presentation software (see Table 10 below).

TABLE 10. TEACHERS' SELF-RATED PROFICIENCY IN USING TECHNOLOGY

Category	Not Rated	Introductory	Intermediate	Proficient
General computer skills	2%	18%	54%	26%
Internet	2%	27%	46%	25%
Email	2%	24%	42%	32%
Word Processing	1%	15%	38%	46%
Databases	28%	37%	24%	10%
Presentation Software	17%	33%	27%	24%

Source: SDUSD EdTechProfile Proficiency Assessment, 2008

Administrators' Technology Skills. Administrators were somewhat more likely than were teachers to rate themselves as proficient in most of the categories of technology use covered on the EdTechProfile Proficiency Assessment survey. About 60% of the district administrators completed the EdTechProfile Proficiency Assessment survey. Only 40% of the administrators who completed the survey rated themselves as proficient in general computer skills; another 44% rated themselves as intermediate in general computer skills. Administrators, like teachers, were most likely to rate themselves proficient in using word processing software (56% said they were proficient, and another 36% rated themselves as intermediate). Overall, administrators were much less likely to rate themselves as proficient or intermediate in skills in using databases and presentation software (see Table 11 below).

TABLE 11. ADMINISTRATORS' SELF-RATED PROFICIENCY IN USING TECHNOLOGY

Category	Not Rated	Introductory	Intermediate	Proficient
General computer skills	1%	14%	44%	41%
Internet	1%	24%	56%	19%
Email	1%	12%	55%	32%
Word Processing	0%	7%	36%	56%
Databases	17%	28%	32%	23%
Presentation Software	24%	22%	21%	33%

Source: SDUSD EdTechProfile Proficiency Assessment

Needs for Professional Development.   Teachers report a wide range of preparation to use computers and the Internet for classroom instruction. Just over 80% of the teachers completing the 2008 EdTechProfile Technology Use Survey reported that they were at an intermediate or proficient level to use computers and 71% reported themselves at the intermediate level or high in using the Internet for classroom instruction. Another 14% and 24% reported that they were at an introductory level in using computers and the Internet in the classroom, respectively.

Most teachers (64%) completing the EdTechProfile Technology Use Survey reported that they had received little formal professional development in the use of computers and the Internet over the past 3 years. One in eight said they had received no formal professional development in this area at all (12%), and another 40% reported receiving between one and eight hours of formal professional development on computer use over the past three years. Another 19% reported completing between 9 and 20 hours of computer-focused professional development over the past three years; only 9% reported receiving 21 or more hours of formal training on using computers and the Internet.

About three-quarters of the teachers surveyed (72%) reported that they need opportunities to participate in educational technology staff development focused on integrating technology into the curriculum.   Another 28% expressed the need for professional development on basic computer and technology skills. Most (59%) reported that they prefer small-group technology training; 19% reported that they prefer one-on-one informal technology training, and another 21% preferred online web-based technology training. Most teachers preferred technology training to be offered during the school day (44%) or after school (26%). Another 21% preferred for technology training to be offered during the summer or off track times, while only 9% preferred it at night(4%) or on the weekend (5%).

Focus groups for professional development. The SDUSD Educational Technology Strategic Plan focuses its efforts systemically K-12., The professional development components of the

ETSP implementation plan detailed in the following sections of this document will focus on integrating technology into the curriculum.

Several professional development objectives address training and preparation of all district staff to use the components of the new integrated student information system (such as the online portal, content management system, and email). The activities within these components will be carried out on a district-wide basis.

4.b. List of clear goals, measurable objectives, annual benchmarks, and an implementation plan for providing professional development opportunities based on the district needs assessment data and the Curriculum Component objectives (Sections 3d-3j) of the plan.

The i21 Interactive Classroom Initiative is the district's systemic approach to professional development and a 21st century learning environment that will enable teachers to appropriately integrate technology into instruction in all curricular areas through a variety of interactive technologies and resources designed to be responsive to students' learning needs as well as enable students to meet the NCLB requirement of being technologically proficient by grade 8. To ensure the successful integration of this technology investment into district classrooms, every professional development opportunity offered in the district will contain a thread on the use of 21st century classroom tools. As each grade level or department is equipped, teachers and administrators will receive training on all features of the new technology tools to ensure they are integrated into daily classroom teaching.

Goal 4.b.1. Revise, establish and disseminate technology and information literacy skills standards expected for completion of grade 5, grade 8, and grade 12.

Objective 4.b.1.1 **By 6/2015, 100% of principals will review with their teachers and staff written district technology skills standards for technology and information literacy at grades 5, 8 and 12 that have been approved by the Board of Education, posted on the district website, and distributed to all teachers and administrators.**

Activities	Responsible Parties	Timeline
Establish technology skills standards review group.	Superintendent/designee, CITO, Ed Tech Director	7/2010 – 8/2010
Review current materials related to technology skills standards and models from educational organizations and other school districts. (See Appendix)	Technology skills standards review group	8/2010-12/2010
Revise current standards for end of elementary school (5th grade), end of middle school (8th grade), and for high school graduation (12th grade).	Technology skills standards review group	1/2011-13/2011
Review draft standards with teachers, site administrators, and curriculum directors. Revise draft standards as needed.	Technology skill standards review group; Curriculum directors; teachers, site admin, Lead Tech Teachers; Library Media teachers and Instructional Media Center staff	3/2011 – 6/2011
Present standards to the Board of Education for review and approval; revise as needed until approved.	Superintendent; Technology skills standards review group	6/2011-8/2011
Print and publish approved standards on the District website; distribute approved standards to all teachers and site administrators through the district communications system.	Education Tech department staff	7/2011-6/2012
Prepare materials that site administrators can use to train their teachers and staff on the district technology standards	Educational Technology Team; curriculum teams	7/2011 – 8/2011

Train site administrators (principals, vice principals) to fully understand the district technology skills standards and how they can be implemented.	Educational Technology Team;	8/2011-12/2011
Provide assistance to site administrators in the development of a strategy for ensuring that their students attain the district technology standards.	Educational Technology Team;	8/2011-12/2011
Principals schedule and provide training sessions for their teachers and staff on the district technology skills standards and how they can be implemented at their site.	Site administrators	1/2012 – 6/2012 then annually

Benchmarks:
- By 8/2011, written district technology skills standards will be approved by the San Diego Board of Education, as measured by the written minutes of the Board meetings.

- By 9/2012, written district technology skills standards for technology and information literacy at grades 5, 8 and 12 will be posted on the district website, as measured by the content of the district website.

- By 6/2013, 100% of principals will review the standards with their respective teachers and staff, as measured by site reports of training completed.

- By 6/2014, 100% of principals will review the standards with their respective staff each year, as measured by site reports of training completed.

- By 6/2015, 100% of principals will review the standards with their respective staff each year, as measured by site reports of training completed.

Target Group:
The target groups for this objective include students, teachers, site administrators and district staff.

Process for Monitoring:
The ETSP Evaluation subcommittee members will evaluate the achievement of this objective by reviewing the process used to develop the district's technology skill standards, the progress made in obtaining Board approval, and site reports of training conducted on the standards. The Evaluation Subcommittee will report its findings to the full ETSP Committee.

Goal 4.b.2. Teachers will have access to a comprehensive program of professional development that will train them to use technology as an integral tool to enhance and support their teaching and to help their students develop digital literacy and use technology tools to construct meaning throughout the content areas of the curriculum.

Objective 4.b.2.1 **By 6/2015, 100% of district teachers and administrators will have access to professional development activities, offered both in-person and online, that address their learning needs identified on the EdTechProfile assessment.**

Activities	Responsible Parties	Timeline
Site administrators and teachers will be trained on the importance of obtaining data from the EdTechProfile Technology Proficiency Assessment and Technology Use Survey to plan professional development and support the integration of technology into the curriculum. Site leaders trained to help teachers complete the EdTechProfile assessments. Site leaders encourage all teachers and staff to complete the EdTechProfile Survey, and provide either group training sessions or individual assistance to teachers to help them complete the EdTechProfile assessments. Teachers complete the EdTechProfile assessments each year.	Educational Technology Team; District instruction leaders; Area Sups; Site administrators, site technical staff, ITSS training staff; teachers	9/2010—6/2011 then annually
Review the EdTechProfile assessment results and site administrators' and teachers' feedback to identify additional training needed to address the learning needs identified on the EdTechProfile assessment.	Educational Technology Team;	10/2010 – 6/2011 then annually
Develop workshops, classes, and online training opportunities to meet the identified needs, including training on pairing Whiteboards with student computers (Netbooks), Internet safety and appropriate use of copyrighted information., Online courses will be offered on Microsoft office software including Word, Excel, Access, Outlook, PowerPoint, and Windows 7.	Educational Technology Team; ITSS Division;	4/2011-6/2011 then ongoing
Provide workshops, classes and online training as needed to help meet teachers' and administrators' professional development needs.	Educational Technology Team; ITSS Division;	4/2011 – 8/2011 then ongoing

Benchmarks:
- By 6/2011, 20% of district teachers and administrators will have access to professional development activities, offered both in-person and online, that address the learning needs identified on the EdTechProfile assessment, as measured by teacher reports on the EdTechProfile Technology Use Survey.

- By 6/2012, 40% of district teachers and administrators will have access to professional development activities, offered both in-person and online, that address the learning needs identified on the EdTechProfile assessment, as measured by teacher reports on the EdTechProfile Technology Use Survey.

- By 6/2013, 60% of district teachers and administrators will have access to professional development activities, offered both in-person and online, that address the learning needs identified on the EdTechProfile assessment, as measured by teacher reports on the EdTechProfile Technology Use Survey.

- By 6/2014, 80% of district teachers and administrators will have access to professional development activities, offered both in-person and online, that address the learning needs identified on the EdTechProfile assessment, as measured by teacher reports on the EdTechProfile Technology Use Survey.

- By 6/2015, 100% of district teachers and administrators will have access to professional development activities, offered both in-person and online, that address the learning needs identified on the EdTechProfile assessment, as measured by teacher reports on the EdTechProfile Technology Use Survey.

Target Group:
The target groups for this objective are district teachers, certificated administrators, and students.

Process for Monitoring:
The ETSP Committee members will review briefing reports that summarize results of the EdTechProfile Technology Use Survey to determine the percentage of district teachers and administrators who have access to professional development activities, offered both in-person and online, that address the learning needs identified on the EdTechProfile assessment. The Evaluation subcommittee will report its findings to the full ETSP Committee.

Goal 4.b.3. Teachers will become proficient and regular users of email.

Objective 4.b.3.1   **By 6/2012, 100% of teachers who participate in the EdTechProfile Technology Use survey will report using district email and VOIP voicemail systems regularly.**

Activities	Responsible Parties	Timeline
Provide training to teachers on the use of the district email and VOIP voicemail systems.	ITSS Training Staff	7/2010 – 6/2011
Obtain feedback on and assess the ability of their teachers to use the district email and VOIP voicemail systems.	Site administrators	9/2010-12/2010 then ongoing
Review site administrators' and teachers' feedback to identify additional training needed on an ongoing basis for teachers to utilize the district email and VOIP voicemail systems.	ITSS Division; Communications Dept.	1/2011 – 2/2011 then ongoing
Develop workshops, classes, and online training opportunities to meet the identified needs.	ITSS Division	2/2011–6/2011, then ongoing as needed
Provide workshops, classes and online training as needed to help teachers utilize the district email and VOIP voicemail systems.	ITSS Division	2/2011 – 6/2012 then ongoing

Benchmarks:
• By 6/2012, 70% of assessed teachers will report using district email and voicemail regularly, as measured by the annual EdTechProfile Technology Use survey.

• By 6/2013, 100% of assessed teachers will report using district email and voicemail regularly, as measured by the annual EdTechProfile Technology Use survey.

• By 6/2014, 100% of assessed teachers will report using district email and voicemail regularly, as measured by the annual EdTechProfile Technology Use survey.

• By 6/2015, 100% of assessed teachers will report using district email and voicemail regularly, as measured by the annual EdTechProfile Technology Use survey.

Target Group:
The target groups for this objective include district teachers, students, and parents.

Process for Monitoring:
The ETSP Evaluation Subcommittee members will review the results of the EdTechProfile Technology Use survey to determine the percentage of district teachers who report that they are proficient in using email. The subcommittee will report its findings to the full ETSP Committee.

Goal 4.b.4. All district teachers, administrators and staff will become proficient and regular users of the integrated Student Information System to support student learning.

Objective 4.b.4.1   **By 6/2015, 80% of district teachers will regularly use the relevant aspects of the Student Information System to support students and enhance teaching and learning.**

Activities	Responsible Parties	Timeline
Provide training to teachers and site administrators on the use of the content management system's user access portal, the Zangle and Encore software and the data warehouse components of the student information system	ITSS Training Team; Standards and Assessment Dept.	7/2010 – 6/2011 then annually
Obtain feedback on and assess the ability of the teachers and staff to use content management system's user access portal, the Zangle and Encore software, and the student information data warehouse (through regularly scheduled staff meetings and online feedback sites).	Site instruction leaders ITSS Division	1/2011-4/2011 then ongoing
Review site administrators' and teachers' feedback to identify training needed on an ongoing basis for teachers to utilize the student information system.	ITSS Training Team Standards & Assessment Dept.;	4/2011 – 6/2015
Develop workshops, classes, and online training opportunities to meet the identified needs.	ITSS Training Team Standards & Assessment Dept.	4/2011–6/2015
Provide workshops, classes and online training as needed to help teachers and their site administrators utilize the information they get from the student information system.	ITSS Training Team Standards & Assessment Dept.	7/2011 – 6/2015

Benchmarks:
- By 6/2011, 20% of district teachers will report using the relevant aspects of the Student Information System to support students and enhance teaching and learning, as measured by site reports and teacher responses on the EdTechProfile Technology Use Survey.

- By 6/2012, 40% of district teachers will report using the relevant aspects of the Student Information System to support students and enhance teaching and learning, as measured by site reports and teacher responses on the EdTechProfile Technology Use Survey.

- By 6/2013, 60% of district teachers will report using the relevant aspects of the Student Information System to support students and enhance teaching and learning, as measured by site reports and teacher responses on the EdTechProfile Technology Use Survey.

- By 6/2014, 70% of district teachers will report using the relevant aspects of the Student Information System to support students and enhance teaching and learning, as measured by site reports and teacher responses on the EdTechProfile Technology Use Survey.

- By 6/2015, 80% of district teachers will report using the relevant aspects of the Student Information System to support students and enhance teaching and learning, as measured by site reports and teacher responses on the EdTechProfile Technology Use Survey.

Target Group:
The target groups for this objective include district teachers and students.

Process for Monitoring:
The Evaluation subcommittee will review briefing reports that summarize input from site administrators and the annual results of the EdTechProfile Technology Use Survey. The Evaluation subcommittee will review this data to determine the percentage of district teachers who demonstrate proficiency in and regularly use the relevant aspects of the Student Information System to support students and enhance teaching and learning. The subcommittee will report its findings to the full ETSP Committee.

Objective 4.b.4.2   **By 6/2015, 100% of district classified staff will demonstrate proficiency in using the aspects of the integrated information system relevant to their job to support teachers and students.**

Activities	Responsible Parties	Timeline
Provide training to district classified staff on the use of the integrated information system, including PeopleSoft applications and the Zangle and Encore software components of the student information system.	ITSS Training Team;	7/2010 – 6/2011 Then ongoing
Survey district classified staff to obtain feedback and assess the ability of district and site classified staff to use the PeopleSoft, Zangle and Encore software .	ITSS Training Team	1/2011-4/2015
Review survey feedback to identify additional training needed on an ongoing basis for classified staff to utilize the integrated information system.	CITO; Ed Tech Director;	4/2011 – 6/2015
Develop workshops, classes, and online training opportunities to meet the identified needs.	ITSS Training Team	4/2011–6/2015
Provide online training, workshops, and classes as needed to help classified staff utilize the integrated information system.	ITSS Training Team	7/2011 – 6/2015

Benchmarks:
- By 6/2011, 20% of district classified staff will demonstrate proficiency in using the aspects of the integrated information system relevant to their job to support teachers and students, as measured by reports from district managers and supervisors.

- By 6/2012, 40% of district classified staff will demonstrate proficiency in using the aspects of the integrated information system relevant to their job to support teachers and students, as measured by reports from district managers and supervisors.

- By 6/2013, 60% of district classified staff will demonstrate proficiency in using the aspects of the integrated information system relevant to their job to support teachers and students, as measured by reports from district managers and supervisors.

- By 6/2014, 80% of district classified staff will demonstrate proficiency in using the aspects of the integrated information system relevant to their job to support teachers and students, as measured by reports from district managers and supervisors.

- By 6/2015, 100% of district classified staff will demonstrate proficiency in using the aspects of the integrated information system relevant to their job to support teachers and students, as measured by reports from district managers and supervisors.

Target Group:
The target groups for this objective include district classified staff, managers, teachers, students, parents and community members who interact with district classified staff.

Process for Monitoring:
The ETSP Evaluation subcommittee will review staff reports summarizing feedback from district managers and site administrators to determine the percentage of district classified staff who demonstrate proficiency in using the relevant aspects of the integrated information system relevant to their job to support teachers and students. The Evaluation subcommittee will report its findings to the ETSP Committee.

> Goal 4.b.5. Provide district teachers and staff with timely and relevant data to streamline and improve access to and accuracy of student, teacher and school records in support of teaching and learning.

Objective 4.b.5.1   **By 6/2015, 90% of district teachers will utilize the educational information portal and content management system for classroom management and instructional activities.**

Activities	Responsible Parties	Timeline
Complete installation of district 10 GB backbone and 100-500 MB network access at all district instructional sites.	District ITSS Division.; Facilities Dept.	7/2010 – 6/2011
Implement the educational information portal software components of the integrated information system; install and troubleshoot system; implement system.	District ITSS Division staff	1/2011 – 6/2012
Implement the content management system software component of the integrated information system; install and troubleshoot system; implement system.	District ITSS Division staff	1/2011 – 6/2012
Develop training workshops, classes and materials on the use of the educational information portal and the content management system for teaching management activities.	District ITSS Training Team; Communications Dept.	1/2011–6/2012
Train teachers and site administrators to use the educational information portal and the content management system for teaching management activities.	District ITSS Training Team; Communications Dept.	1/2012-6/2013 then ongoing
Teachers and site administrators use the educational information portal and the content management system for teaching management activities.	Teachers, site technical staff and administrators	1/2012-6/2015

Benchmarks:
- By 6/2011, 20% of district teachers will utilize the educational information portal and content management system for classroom management and instructional activities, as measured by site Technology survey and EdTechProfile Technology survey results.

- By 6/2012, 30% of district teachers will utilize the educational information portal and content management system for classroom management and instructional activities, as measured by site Technology survey and EdTechProfile Technology survey results.

- By 6/2013, 50% of district teachers will utilize the educational information portal and content management system for classroom management and instructional activities, as measured by site Technology survey and EdTechProfile Technology survey results.

- By 6/2014, 75% of district teachers will utilize the educational information portal and content management system for classroom management and instructional activities, as measured by site Technology survey and EdTechProfile Technology survey results.

- By 6/2015, 100% of district teachers will utilize the educational information portal and content management system for classroom management and instructional activities, as measured by site Technology survey and EdTechProfile Technology survey results.

Target Group:
The target groups for this objective include teachers, students, and site instruction leaders.

Process for Monitoring:
The ETSP Evaluation Subcommittee will review staff reports, site Technology survey and EdTechProfile Technology survey results to determine whether teachers utilize the educational information portal and content management system for teaching management activities. The Evaluation subcommittee will report its findings to the ETSP Committee.

Objective 4.b.5.2   By 6/2015, 100% of district administrators will utilize educational administration applications through an online document management system.

Activities	Responsible Parties	Timeline
Complete installation of district 10GB internet backbone and 100-500MB network access at all district sites.	District ITSS Division.; Facilities Dept.	7/2010 – 6/2011
Implement the educational information portal software components of the integrated information system; install and troubleshoot system; implement system.	District ITSS Division staff	7/2010 – 6/2011
Implement the document management system software component of the integrated information system; install and troubleshoot system; implement system.	District ITSS Division staff	1/2011 – 6/2012
Develop training workshops, classes and materials on the use of the document management system for educational administration applications.	District ITSS Training Team;	1/2011–6/2012
Train staff members to use the document management system for educational administration applications.	District ITSS Training Team Department	1/2011-6/2015
District staff members use the document management system for educational administration applications.	District staff members and administrators	7/2011-6/2015

Benchmarks:
- By 6/2011, 20% of district administrators will have access to an online document management system, as measured by information system usage records.

- By 6/2012, 40% of district administrators will have access to an online document management system, as measured by information system usage records.

- By 6/2013, 60% of district administrators will have access to an online document management system, as measured by information system usage records.

- By 6/2014, 80% of district administrators will have access to an online document management system, as measured by information system usage records.

- By 6/2015, 100% of district administrators will have access to an online document management system, as measured by information system usage records.

Target Group:
The target groups for this objective include district administrators, teachers, parents and students.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review staff reports summarizing system usage records to determine whether district administrators utilize educational administration applications through an online portal and content management system. The subcommittee will report its findings to the ETSP Committee.

Objective 4.b.5.3.   By 6/2015, 100% of district staff members (certificated and classified) will utilize business applications and communications through an online portal and content management system.

Activities	Responsible Parties	Timeline
Complete installation of district 10 GB backbone and 100-500 MB network access at all district sites.	District ITSS Division; Facilities Dept.	7/2010 – 6/2011
Implement the business information portal software components of the integrated information system; install and troubleshoot system; implement system.	District ITSS Division staff	7/2010 – 6/2011
Implement the business applications and communications software component of the integrated information system; install and troubleshoot system; implement system.	District ITSS Division staff	1/2011 – 6/2012
Develop training workshops, classes and materials on the use of the business applications and communications.	District ITSS Training Team	1/2011–6/2012
Train staff members to use the business applications and communications systems.	District ITSS Training Team	1/2011-6/2015
District staff members use the business applications and communications systems.	Teachers, site technical staff and administrators	1/2011-6/2015

Benchmarks:
- By 6/2011, 20% of district staff members will have access to business applications and communications, as measured by staff reports and system usage data.

- By 6/2012, 100% of district staff members will have access to business applications and communications, as measured by staff reports and system usage data.

- By 6/2013, 100% of district staff members will have access to business applications and communications, as measured by staff reports and system usage data.

- By 6/2014, 100% of district staff members will have access to business applications and communications, as measured by staff reports and system usage data.

- By 6/2015, 100% of district staff members will have access to business applications and communications, as measured by staff reports and system usage data.

Target Group:
The target groups for this objective include all district staff members (teachers, administrators, other certificated staff, and all classified staff) who use business applications and communications, parents, students and community members.

Process for Monitoring:
The Evaluation subcommittee will review staff reports and information system usage reports to determine whether district staff members utilize business applications and communications through an online portal and content management system. The subcommittee will report its findings to the ETSP Committee.

4.c. Description of the process that will be used to monitor the Professional Development (Section 4b) goals, objectives, benchmarks, and planned implementation activities including roles and responsibilities.

The monitoring process for the achievement of each objective is described in the prior sections. The Educational Technology Strategic Plan (ETSP) Committee will be established to provide oversight to the implementation of the technology plan and to evaluate its impact of district goals for student learning and classroom and school management. The ETSP Committee will establish an Evaluation subcommittee to review data and program reports collected district staff to determine whether the ETSP is achieving its goals and objectives.

The ETSP Evaluation subcommittee will identify the most successful practices and areas in which challenges have been encountered and improvements are needed, identify potential changes and improvements that could be made to the Educational Technology Strategic Plan (including roles and responsibilities), and make recommendations for changes to the plan to the full ETSP Committee for their review. The full ETSP Committee will prepare an annual report to the Superintendent and Board of Education concerning their findings and recommendations. The ETSP Committee also will share their data and conclusions with all key stakeholders, including teachers, school site administrators, central office staff and administrators, parents, students and community members. Please refer to Section 7 of this plan for a more comprehensive overview of the monitoring plan.

| 5. | INFRASTRUCTURE, HARDWARE, TECHNICAL SUPPORT, AND SOFTWARE COMPONENT CRITERIA |

5.a. Describe the existing hardware, Internet access, electronic learning resources, and technical support already in the district that will be used to support the Curriculum and Professional Development Components (Sections 3 & 4) of the plan.

Physical plant modifications. In November 1998, San Diego voters approved Proposition MM, a $1.5 billion bond measure to make critical repairs and upgrades at San Diego City Schools. Proposition MM included funding for technology improvements at elementary and high schools (middle schools were upgraded through Proposition O, a $245 million bond measure passed in 1992).   SDUSD has contracted with general contractors to install the infrastructure of the LAN (electrical upgrades plus conduits, cabling, cabinets, etc.). All physical plant modifications (including electrical upgrades) for technology improvements at existing schools were completed in 2006. Proposition MM also included building 12 new schools and rebuilding another three schools. This school construction was completed in 2008. In November 2008, San Diego voters approved Proposition S, a $2.1 billion bond measure to fund the repair and renovation of SDUSD school facilities. The Proposition S bond measure will provide over $25 million per year through 2014 for educational technology (and a total of $400 million over 15 years).

Network and telecommunications. SDUSD contracted with certified systems integrators for the installation of the LAN electronic components of the technology upgrades funded through Proposition MM.   The district is pursuing an end-to-end networking design to provide the entire school district with interconnectivity and optimal performance to meet today's computer needs and lay the foundation for the future. The objectives for the design of the Local Area Network include:

- *Access to other networks and systems providing rich content resources for teaching and learning on the district classroom desktops and computers*. The LAN infrastructure will provide access to the Digital California Project K-12 Statewide Network, will allow students and teachers to access content on the Internet and World Wide Web, and will allow distance learning to occur both internally within district classrooms and externally from remote locations.

- *Integrate effectively with future technology while incorporating existing desktop equipment into the new LAN design*. The school LAN is designed with backward-compatible desktop connectivity. Active LAN components will have a seven to ten year life; the cable will have a ten to fifteen year life. Using raceways and trays where possible facilitates future cable modification. The LAN is designed to provide the ability to create virtual LANs within each classroom, and to allow migration to voice-over-IP.

- *Meet school population growth*. The school LAN typology is designed to allow for additional fixed and portable buildings, and to allow maximum use of LAN drops within each classroom. Equipment is selected for its capability to expand or extend functionality.

- *Enhance delivery of high-quality, relevant professional development and training experiences.* The school LAN is designed with enough bandwidth to accommodate acceptable simultaneous voice, video and data transmission rates.

- *Allow enough flexibility in LAN design to plug in additional devices with minimal impact to the cable plant and LAN hardware.* A flexible approach to topology, hardware and cabling is used to accommodate the different library, science, computer labs and classroom design specifications.

- *Allow secure, remote management of LAN infrastructure.* LAN equipment provides secure, remote management, with remote access to LAN management available from inside and outside the school LAN.

The LAN backbone operates at 1 Gigabit per second (Gbps) speed over 50/125 fiber optic cable, which is installed between the central switch and all connecting switches. The LAN operates at 10/100 Megabits per second (Mbps) from the interconnecting switch to the desktop devices. Enhanced Category 5 (Cat 5e) cable is installed from the interconnecting switch to the wall plates in the classrooms.

The telecommunications network currently includes basic phone and services (including alarm lines, centrex lines, conferencing services, custom calling services, direct inward dialing, directory assistance, FAX lines, homework hotline services, wire maintenance, local measured service and lease charges for trunk or transport lines), long distance service, cell and paging services. Internet access includes digital subscriber lines, domain name registration, email services, firewall services, GSP services, web hosting and wireless Internet access. The San Diego Board of Education approved the acquisition of a VoIP system in January 2010.

Information Systems. SDUSD has implemented an integrated information system and content management system to provide online access to educational resources, tools and information for teachers, students, administrators, staff, parents and community members. During the term of the 2005-2010 Educational Technology Strategic Plan, SDUSD implemented Oracle's PeopleSoft Enterprise systems to manage the district's payroll, financial systems and procurement processes. In 2009 SDUSD worked with the Oracle Insight program to assess the district's information technology systems and infrastructure. The assessment identified the district's key objectives, analyzed the existing enterprise resource planning (ERP) systems, IT infrastructure and governance structure, and developed a roadmap for implementation of a comprehensive business intelligence system to provide increased financial controls and streamline procurement processes.

SDUSD identified the need for business intelligence applications as a result of this assessment. Business intelligence includes applications and technologies for gathering, storing, analyzing, and providing access to data. Business intelligence applications include the activities of decision support systems, query and reporting, online analytical processing, statistical analysis, forecasting and data mining that will help district users make better decisions in and out of the classroom.

SDUSD is implementing Oracle Business Intelligence Enterprise Edition (OBIEE) and Oracle Business Intelligence (BI) Applications to improve and restructure the district's internal financial controls and processes. In addition, SDUSD will implement Oracle's PeopleSoft Enterprise eSettlements, PeopleSoft Enterprise Supplier Contract Management and PeopleSoft Enterprise eSupplier Connection to streamline procurement processes, reduce administrative burdens and reduce overall spending.

With OBIEE and Oracle BI Applications, SDUSD expects to improve the enterprise resource planning process and improve visibility and access to key data (i.e. student metrics related to attendance and enrollment) for better management and executive level decision-making. SDUSD will use the PeopleSoft Enterprise applications to centralize procurement and add advanced procurement capabilities. This is expected to ultimately reduce spending on goods and services, streamline procure-to-pay processes, and drive policy compliance.

As it implements a comprehensive business intelligence system, SDUSD will evolve over time to have a single source for reporting, full integration of all district data, elimination of data silos, and data transparency. The business intelligence system will enable the district to identify "bad" data and allow sites and departments to see and fix it, and to develop a districtwide Data Governance program.

The district also has implemented student information system applications, including C Innovations' Zangle SIS. Zangle covers all aspects of student management, including enrollment, scheduling, attendance, assessment, mark reporting, transcripts and graduation, discipline, health, test management, services and programs management, English Learner testing and programs, special education, student accounting, school-to-work programs, and food services. Zangle is a non-proprietary, ODBC compliant, enterprise-wide open system running on Microsoft SQL Server. Because it is a non-proprietary system, all data is accessible to create custom applications or reports using third party software (such as the Oracle Business Intelligence systems). Zangle captures the data elements necessary to enable SDUSD to meet the numerous federally mandated reports such as NCLB, state reports such as CA Longitudinal Pupil Achievement Data System (CALPADS) and the several mandated district reports on regulations and accountability.

SDUSD has implemented Encore, an Individualized Educational Plan (IEP) software system. The Encore IEP software suite provides a web-based all-in-one solution to manage the individualized learning process for all students receiving special services including special education, 504, limited English proficiency (LEP/ESL) and pre-referral Response to Intervention (RTI) programs. Encore provides a full spectrum of capabilities including state reporting, accountability and Medicaid billing recovery.

SDUSD has selected Schoolwires Centricity for the district's content management system (CMS) to provide online access to educational resources, tools and information for teachers, students, administrators, staff, parents and community members. SDUSD identified two key functions of the content management system during its selection process:

(1)   The CMS centralizes all district information and content, and then delivers that information to individual users based on their roles, rights and responsibilities. It allows

display of only useful, relevant content, and automates business processes while maintaining accountability. The CMS provides access to business applications, district news and information, employment information, email, digital storage, professional development and training, and online collaboration tools such as video streaming and conferencing and content resources for curriculum development.

(2)   The CMS enables teachers and staff to create, edit and manage their own content and publish it to the Web without special equipment or expertise. This automated publishing function will be forms-based for consistency and ease of use.

SDUSD selected the Schoolwires Centricity solution for its CMS. Centricity offers a comprehensive, integrated suite of online solutions that connects the K-12 community via a single unified technology platform. Centricity's high level of Web 2.0 functionality and interactivity enables users to use a host of functions — personalization, blogs, forums, discussion groups, user ratings/comments and more.

Centricity provides employee access to business applications and communications; administrator access to educational administration applications (school, department information; student academic achievement, etc.); teacher access to educational administration applications (attendance, grading, etc.); teacher access to educational technology applications (such as website development) and support; student access to educational technology applications and support, including teacher's class websites; parent access to district, school, classroom and student information; and community access to district and school information.

Hardware. The district includes the specifications for the hardware needed to operate its networks and information systems in the design of those systems. The appropriate hardware has been implemented as needed during the installation of the Local Area Network and the integrated information system.

At the end of the 2008-2009 school year, student computer access was provided through desktop/computers located in classrooms, libraries and labs. The district's elementary, middle and high schools have different levels of access to computers:

- Most student computers are in classrooms; but only 81% of them have Internet access. Many classroom computers are more than three years old. Newly constructed or rebuilt elementary schools have digital classrooms, which provide a teacher presentation system that includes a computer, LCD video projector, document camera, a SchoolPad (a wireless mobile pad), and audio system, and network and Internet access.

- Middle schools generally have traditional classrooms with an overhead projector and white board. They may have a few computers in each classroom, but almost a quarter of the computers available are in labs. Many of the computers available are too old to run electronic learning resources. There is no file protection or storage solution available. The two rebuilt or newly constructed middle schools will have digital classrooms that provide a teacher presentation system.

- High schools also generally have traditional classrooms with an overhead projector and white board. They may have a few computers in each classroom, but many of them are too old to run electronic learning resources. About one in five of the computers available for student use are in labs. There is no file protection or storage solution available.

Approximately 15% of schools are using mobile computer carts, which provide computers for student use on a 1:1 basis, a teacher workstation, a projection device, laser printer and network connections. Table 12 summarizes schools' access to hardware:

TABLE 12: ACCESS TO COMPUTERS

	Elementary Schools	Middle Schools	High Schools
Average ratio of students to computers[1]	4.19	2.39	3.58
Percent of computers in classrooms[2]	71%	49%	55%
Percent of computers in labs[2]	13%	23%	27%
Percent of computers in library[2]	6%	8%	5%
Percent of computers in carts[2]	4%	16%	11%
Percent of computers with Internet access[2]	81%	96%	97%
Percent of computers under 3 years old[2]	30.9%	44.6%	32.5%
Percent of computers 3-4 years old[2]	16.6%	21.0%	21.8%
Percent of computers over 4 years old[2]	43.2%	34.0%	47.0%

Source: [1]SDUSD data reported to the California Department of Education, 2008-2009; [2]State Technology Survey 2007.

Approved by the SDUSD Board of Education on June 2, 2009, the 21st Century (i21) Interactive Classroom Initiative is a multi phased five-year plan beginning July 1, 2009.

Prop S 5-Year Technology Implementation Plan				
2009	2010	2011	2012	2013
Grade 3	Grade 4	Grade 5	Grade 1	Grade K
Grade 6	Grade 7	Grade 8		Grade 2
Grades 9-12 Mathematics (20%)	Grades 9-12 (20%)	Grades 9-12 (20%)	Grades 9-12 (20%)	Grades 9-12 (20%)

It is anticipated that by the end of the 2009-2010 school year, approximately 1,300 classrooms will have been updated, thus impacting teaching and learning for over 25,000 students and their teachers.

The 21st Century (i21) Interactive Classroom is an engaging, interconnected learning environment designed to optimize student access and participation by integrating mobile computing, audio, visual and formative assessment technologies across the curriculum. The i21 classroom is both relevant and advanced in technology implementation that maximizes flexibility and provides just-in-time functionality for student learning.

The essential tools of the i21 classroom include the pairing of Interactive White Board (IWB) technology with student computers (Netbooks) to increase the ability to teach with technology, and to optimize student access and engagement. These tools allow the teacher to configure the learning environment according to the context of the student-centric work at hand to meet state standards and learn 21st Century skills as thinkers, creators, designers and builders.

A strategic pervasive capacity-building (PCB) implementation model will be utilized over a five-year period to transform more than 7,000 district classrooms. The PCB approach provides two advantages in large scale systemic technology implementations: 1) enables computing tools and resources to be pervasive as students move forward from grade to grade; 2) increase training capacity by developing expertise among teachers with shared content and teaching practices. Approximately 1,300 *i21* interactive classrooms have been installed in the 2009-2010 school year: all district third- and sixth-grade classrooms and 20 percent of all ninth- through 12th-grade classrooms (starting with mathematics). The above chart outlines the progression of i21 implementation in years 2-5

The i21 interactive classroom consists of four major systems that integrate the hardware, software and networked technologies to provide teaching strategies that integrate technology for differentiating instruction in multiple ways of representation, expression and engagement. Teachers will use a variety of digital tools to create curricula materials that provide access, engagement and achievement to a diverse group of learners in the classroom. The four components of the i21 interactive classroom include:

1. The 95" diagonal **Interactive Whiteboard** provides students a multi-sensory experience including presenting information displayed with perceptual features that can be varied:
   - *size* of text or images
   - *amplitude* of speech or sound
   - *contrast* between background and text or image
   - *color* used for information or emphasis
   - *speed* or timing of video, animation, sound, simulations, etc
   - *layout* of visual or other elements

2. The **Presentation Station** including the **Document Camera** and **Teacher's Multimedia Tablet Computers** provide visual and auditory options to students including:
   - Enlarged text and objects from micro to macro sizes that can be seen from anywhere in the classroom

- Graphics, animations and video options
- Text to speech options (allows students to hear text read aloud)
- Software to highlight and annotate text and graphic features for all student to see and hear with the interactive whiteboard system

3. **Classroom Audio Technology** including a sound-field amplification wireless microphone system that allows the teacher and students to be clearly heard anywhere in the classroom. The system also includes:
   - HDTV tuner with closed captioning
   - DVD player/ recorder for playing all formats of DVD and digital media flash drives
   - Four ceiling or wall speakers with amplifier to evenly distribute any audio source in the classroom.

4. **Student computers (Netbooks):** Every 3rd grade classroom is provided a cart containing 25 Netbooks and every 4th through 12th grade classroom is provided with a cart with 34 Netbooks. (Netbook implementation is limited to academic classrooms)
   Features include:
   - Hard drive software applications to create content
   - Wireless access to the Internet and classroom printing access
   - eReader for eBooks and eTextbooks with text to speech options
   - MP3/Podcasting software for a variety of audio files
   - A student response system built-in as VR software for formative assessment connected and directed with the teacher's computers
   - Web-based applications in an networked academic cloud of read/write services

5. **Student Responders:** A set of 24 student responders is provided to every K-2 class.
   Each learner response devide gives individual students a voice while equipping teachers with a revolutionary tool for delivering dynamic lessons tailored to the immediate assessment of student performance.

Electronic learning resources. Currently available electronic learning resources support content areas include the following applications.
- Productivity software such as word processors, presentation tools and spreadsheets.
- Graphic organizers
- Digital media applications for editing movies, slide shows and pod casts. Artificial intelligentskill development programs such as those that analyze student writing Data-collection software such as probeware and datalogger
- Digital resources/data base tools such as Pro Quest, and United Streaming
- Online simulations through resources such

The district will continue to evaluate a variety of applications such as those listed above. Open Source and digital content will be considered as it becomes more readily available and supportable.

Technical Support. The SDUSD Integrated Technology Support Services (ITSS) Department provides technical support for the maintenance and operations of all operating systems, including the telecommunications systems and Local Area Networks, and the integrated information system. The ITSS Division operates a Help Desk that utilizes a tiered support model. At Tier 1, a representative answers the Help Desk call, identifies the problem, records it and routes it to the appropriate person for resolution. In some instances the Tier 1 representative is able to solve the problem over the telephone. In Tier 2 assistance, a Computer Repair Technician will access the problem computer remotely, diagnose the problem, and repair it remotely if possible. In instances in which the problem cannot be repaired remotely, the Help Desk will send a Computer Repair Technician or other expert to the work site to repair the equipment.

The ITSS Division also provides centralized technical support to all elementary, K-8 and middle school sites through a tech support pool consisting of 20 Network Systems Media Technicians. Each comprehensive high school has a Network Systems Media Technician built its minimum staffing allocationLarge middle school sites are encouraged to continue to use site discretionalry funds to support their own dedicated Networks Systems Media Techician positions.. Additionally, the following classified staff positions provide technical support to the teachers and staff at the school site:

1. *Network systems technician.* This position provides software training and technical assistance to staff and maintains equipment inventories. The Network Systems Technician performs any combination of the following duties: assists in coordinating the implementation and maintenance of a LAN and WAN; installs and configures hardware, software workstations, and troubleshoots hardware, software and network connections.

2. *Media production specialist.* This position assists students and staff by performing professional multimedia duties in the following areas: provides training to students in the operation of media equipment and in the production of video newscasts and other programs; coordinates satellite downlinks, interactive conferences and ITV and CCTV schedules; and prepares or trains students in the preparation of desktop publications and the design and development of graphic displays.

3. *Network systems and media support technician.* This position coordinates the implementation and maintenance of a LAN system at a school site, provides training and technical assistance to staff related to the operation of the LAN and WAN systems, and provides AV and video support services. The Network systems and media support technician also may install workstation hardware and related equipment, install and configure workstation software, troubleshoot and isolate problems of cross-platform microcomputers and printers, and determine if the problem is related to hardware, software or a combination.

Each school site has a Student Information Site Technician to work on attendance, calendar, and other student information functions. Some of these Student Information Site Technicians provide informal technical support on the site, but that is not part of their job.

5.b. Describe the technology hardware, electronic learning resources, networking and telecommunications infrastructure, physical plant modifications, and technical support needed by the district's teachers, students, and administrators to support the activities in the Curriculum and Professional Development Components of the plan.

SDUSD teachers, students and administrators need access to a comprehensive technology system to support the curriculum and professional development activities outlined in this plan. The components of the comprehensive technology system needed are described below.

<u>Physical infrastructure and networking</u>. Networking and Internet access requires the appropriate physical infrastructure (and related software applications) at both school and administrative sites. Proposition S will install a wireless network in each school site and upgrade site electrical systems as needed. It will increase the backbone to 10 GB between the district Data Centers and network sites. Elementary schools will be increased from 15 MB to 100 MB per site; middle schools and high schools will be increased from 20 MB to 500 MB at each site.

<u>Telecommunications</u>. SDUSD will move to Voice-over-Internet Protocol (VoIP) to provide the communications and networking applications required for integrating technology into the curriculum and professional development. This will include video over the Internet as well as voice communications, directory services, appropriate filters for SPAM, viruses, and email web security. The San Diego Board of Education approved the acquisition of a VoIP system in January 2010.

<u>Information Systems</u>. SDUSD plans to implement a document management system during the term of this 2010-2015 Educational Technology Strategic Plan. The district has selected Schoolwires Synergy, a web-based, centralized and secure solution for creating, editing, and sharing content such as documents, files and presentations. Synergy is designed to give K-12 administrators, staff, teachers and students the power to securely store, organize and access digital files online at any time, from anywhere — from collaborative learning assignments and class presentations to contact lists and more. It provides a web-based environment to allow teachers, students, administration and staff to securely create, store, organize, edit and share their files. Files can be created and edited online from any web browser. It enables teachers to share important information and assignments and manage homework drop boxes. It enables students to collaborate on papers and group projects. Synergy creates consistent folder hierarchies and folder configurations to provide easier access to files.

SDUSD is now considering adoption of a student achievement management system to expand on the ENCORE system to provide a case management platform for all students in grades K-6. SDUSD has selected EXCEED as its Student Achievement Management software solution. In a single, web-based platform, EXCEED Student Achievement Manager consolidates student information to provide a single access point and holistic, 360° view of each student ensuring fully-informed, evidence-based decision making. It gives teachers a simple, automated way to drive day-to-day activities, interventions and progress monitoring, incorporates any interventions/instructional strategies, goal banks and curriculum-based/progress monitoring measures, and shows what is working most effectively at the individual student, class, grade,

group or district level. SDUSD will implement EXCEED during the term of this 2010-2015 Educational Technology Strategic Plan.

Hardware. The specifications for the hardware needed to operate district networks and information systems are included in the design of those systems. The 21st Century (i21) Interactive Classroom Initiative is a multi phased five-year plan that began July 1, 2009. The 21st Century (i21) Interactive Classroom is an engaging interconnected learning environment designed to optimize student access and participation by integrating mobile computing, audio, visual and formative assessment technologies across the curriculum. The essential tools of the i21 classroom include the pairing of Interactive White Board (IWB) technology with student computers (Netbooks) to increase the ability to teach with technology, and to optimize student access and engagement. These tools allow the teacher to configure the learning environment according to the context of the student-centric work at hand to meet state standards and learn 21st Century skills as thinkers, creators, designers and builders.

A strategic pervasive capacity-building (PCB) implementation model will be utilized over a five-year period to transform more than 7,000 district classrooms. The PCB approach provides two advantages in large scale systemic technology implementations: 1) enables computing tools and resources to be pervasive as students move forward from grade to grade; 2) increase training capacity by developing expertise among teachers with shared content and teaching practices. In Year 1 of this Plan (the 2010-2011 school year, and the second year of the i21 implementation), all classrooms in grades 4 and 7 will be transformed, as will grades 9-12 Language Arts classrooms. In Year 2 of the plan (the 2011-2012 school year), classrooms in grades 5 and 8 will be transformed, as will 20% of grades 9-12 classrooms. In Year 3 of the plan (2012-2013) SDUSD will update all grade 1 classrooms and another 20% of the district's high school classrooms. In Year 4 of the plan(2013-2014) SDUSD will update all Kindergarten and grade 2 classrooms and the remaining district core subject high school classrooms.

The i21 interactive classroom consists of four major systems that integrate the hardware, software and networked technologies to provide teaching strategies that integrate technology for differentiating instruction in multiple ways of representation, expression and engagement. Teachers will use a variety of digital tools to create curricula materials that provide access, engagement and achievement to a diverse group of learners in the classroom. The four components of the i21 interactive classroom include:

1. The 95" diagonal Interactive Whiteboard provides students a multi-sensory experience including presenting information displayed with perceptual features that can be varied.

2. The Presentation Station including the Document Camera and Teacher's Multimedia Tablet Computers provide visual and auditory options to students.

3. Classroom Audio Technology including a sound-field amplification wireless microphone system that allows the teacher and students to be clearly heard anywhere in the classroom.

4. Student computers (Netbooks), provide classrooms with a one-to-one ratio for every 3rd to 12th grade student.

SDUSD also will pilot test a 1:1 computing program that will provide students with personal computers (Netbooks) that they can take home, and that provides broadband access at schools and at home. This pilot test will determine what it takes to implement a take-home program and whether it can be scaled districtwide to help close the digital divide among students in the district.

Electronic learning resources. SDUSD is preparing to adopt digital textbooks that are downloadable and may be projected on a screen, viewed on a computer, printed chapter by chapter, or bound for use in the classroom. In its selection process, SDUSD expects to utilize reviews of available digital textbooks facilitated by the California Learning Resource Network (CLRN) that confirm whether materials fully, partially or did not meet State Board of Education adopted standards for geometry, algebra II, trigonometry, calculus, physics, chemistry, biology/life science and earth science.

Technical Support. Additional technical support at the school sites is needed to help teachers ensure that the technology they are integrating into the curriculum is up, running, and providing students with access to the Internet, communications, software applications and rich content resources.

Systems and equipment needed. SDUSD has identified the specific systems and equipment that is needed for the implementation of the Educational Technology Strategic Plan. The items to be acquired for the implementation of the curriculum and professional development components of the plan are listed below.

Items to Be Acquired

A wide range of hardware, software and applications will be purchased to implement the Educational Technology Strategic Plan (see sections 4000 and 5000 of the budget, pages 98-101). The purchases may be grouped into several categories, including:
 	
• Infrastructure upgrades to existing and new schools, as identified in district facilities plan, including cabling and conduits to support both WAN and LAN applications.
 	
• Expanding VoIP existing system for telecommunications
 	
• Hardware
    o Equipment for the VoIP system, including telephones
    o The computers and other equipment specified to outfit an i21 interactive classroom.

Items to Be Acquired (cont.)

- Integrated Information Systems upgrades
  - Oracle Business Intelligence developments
  - IEP/RTI software
  - PeopleSoft business applications upgrades
  - File storage and document management systems
  - Business application upgrades and support
    - Transportation
    - Food Services
    - Maintenance
    - Mail Distribution
    - Inventory
    - Security

- Electronic learning resources
  - Centricity, the Content Management System that will to provide website development applications and access to the integrated information system
  - Instructional applications and access to content, including
    - Digital textbooks
    - online databases
    - online content streaming
    - and online project builder
  - Digital storage applications

The acquisition, installation and implementation of these hardware and software applications will support the curriculum and professional development components of this plan. Key stakeholder groups will gain access to educational information and resources:

- Teachers will be able to use the computer provided in their classroom to gain access to an integrated information system that will provide: ready access to instructional resources; webpage development software; email they can use to communicate with students, parents, and colleagues; voicemail to facilitate communications with parents and community members; access to the student information system; student attendance and record-keeping systems; business applications (such as employee information).

- Students will be able to access the integrated information system from computers available in the classroom (either through desktop computers in the classroom, computers (Netbooks) accessed from mobile computer carts or through the completed i21 interactive classroom). The system will allow students to access web 2.0 tools., the Internet, and instructional resources and materials. The system also will facilitate student communication with their teachers and access to instructional resources when they are not at school.

- Parents will have access to teachers and administrators via email and voicemail (so that parents can leave messages while the teachers and administrators are in class). Parents also will be able to access information about the district, their child's school, and their child's courses via district, school, and teacher webpages.

- Community members will be able to access information about the district, schools and classes via the websites that are developed through use of the system.

5.c.   List of clear annual benchmarks and a timeline for obtaining the hardware, infrastructure, learning resources and technical support required to support the other plan components identified in Section 5b.

The district has begun the process of developing an integrated information system and content management system that will provide online access to educational resources, tools and information for teachers, students, administrators, staff, parents and community members. The integrated information system and content management system will make student record keeping and assessment more efficient. The district has selected appropriate software for the integrated information system components. Implementation of the district integrated information system involves the development and implementation of the following system components: (1) Internet and network access; (2) Business Applications (predominately through PeopleSoft), a Student information system, including Zangle, an integrated student information system, Encore, an IEP software system, and the student information data warehouse; and User Access, managed through the Content Management System.

The goals, objectives, benchmarks and timelines for obtaining the hardware, infrastructure, learning resources and technical support required to support the other plan components target groups are described on the following pages.

> Goal 5.c.1. Provide teachers, administrators and staff with online access to timely, relevant and accurate student, teacher and school data that can be used to enhance teaching and learning.

Objective 5.c.1.1 **By 6/2015, 100% of district teachers, administrators and staff members will have access to an online portal, content management system and document management system that will provide teaching, instructional management, business and communications applications.**

Activities	Responsible Parties	Timeline
Complete installation of 10 GB internet backbone and 100-500 MB network access at all district sites.	District ITSS Division; Facilities Dept.	7/2010 – 6/2011
Complete implementation of the online information portal software components of the integrated information system; install and troubleshoot system; implement system.	District ITSS Division staff	7/2010 – 6/2011 then ongoing as needed
Complete implementation of the content management system software component of the integrated information system; install and troubleshoot system; implement system.	District ITSS Division staff	1/2011 – 6/2012 then ongoing as needed
Implement the document management system software component of the integrated information system; install and troubleshoot system; implement system.	District ITSS Division staff	1/2011 – 6/2012 then ongoing as needed

Benchmarks:
- By 6/2011, 20% of district teachers, administrators and staff will have access to instructional, educational administration and business/communications applications through an online portal and content management system.

- By 6/2012, 40% of district teachers, administrators and staff will have access to instructional, educational administration and business/communications applications through an online portal and content management system.

- By 6/2012, 60% of district teachers, administrators and staff will have access to instructional, educational administration and business/communications applications through an online portal and content management system.

- By 6/2014, 80% of district teachers, administrators and staff will have access to instructional, educational administration and business/communications applications through an online portal and content management system.

- By 6/2015, 100% of district teachers, administrators and staff will have access to instructional, educational administration and business/communications applications through an online portal and content management system.

Target Group:
The target groups for this objective include all district staff members who use business applications and communications. Parents and students will benefit from the availability of communications systems.

Process for Monitoring:
The ETSP Evaluation subcommittee members will review staff reports to determine whether district teachers, administrators and staff members have access to appropriate instructional, educational administration, business and communications applications through an online portal and content management system. The Evaluation subcommittee will report its findings to the ETSP Committee.

> Goal 5.c.2. Provide all teachers with timely and relevant technical support to improve their access to, understanding of, and use of technology for teaching and classroom management.

Objective 5.c.2.1   **By 6/2015, 100% of district teachers will have access to the full range of identified technical support resources.**

Activities	Responsible Parties	Timeline
Identify and/or develop written resources for technical support; procure or publish, and disseminate them to teachers.	District ITSS Division staff	7/2010 – 6/2011
Develop and/or identify web-based technical information resources that can deliver online technical support to teachers, covering the use of the available technology for teaching and classroom management.	District ITSS Division staff	7/2010 – 6/2011
Expand the current help desk program to provide computer -based technical support to teachers to troubleshoot technical problems.	District ITSS Division	7/2010 – 6/2011 Then ongoing, reviewed quarterly
Provide technical support over the network (with a help desk staff members able to control the caller's computer remotely) to provide immediate assistance with technical problems and appropriate/feasible repairs.	District ITSS Division	1/2011–6/2012 Then ongoing
Provide centralized technical support to all elementary, K-8 and middle school sites through a tech support pool of Network Systems Media Technicians providing in-person technical support and repairs on-site. (Each comprehensive high school has a Network Systems Media Technician built its minimum staffing allocation)	District ITSS Division District and site administrators	1/2011-6/2012 then ongoing as needed

Benchmarks:
- By 6/2011, 20% of district teachers will have access to the full range of identified technical support resources, as measured by site reports and the State Technology Survey.

- By 6/2012, 40% of district teachers will have access to the full range of identified technical support resources, as measured by site reports and the State Technology Survey.

- By 6/2013, 60% of district teachers will have access to the full range of identified technical support resources, as measured by site reports and the State Technology Survey.

- By 6/2014, 80% of district teachers will have access to the full range of identified technical support resources, as measured by site reports and the State Technology Survey.

- By 6/2015, 100% of district teachers will have access to the full range of identified technical support resources, as measured by site reports and the State Technology Survey.

Target Group:
The target groups for this objective include district teachers, students and site administrators.

Process for Monitoring:
The ETSP Evaluation subcommittee will review semester site reports and the annual State Technology Survey results (as available) to determine whether district teachers have access to the full range of identified technical support resources. The subcommittee will report its findings to the ETSP Committee.

> Goal 5.c.3. Provide all students with adequate access to one-to-one computing resources to meet their learning needs.

Objective 5.c.3.1   By 6/2015, 100% of district students will use computers (mobile computing) at a one-to-one ratio on a regular basis.

Activities	Responsible Parties	Timeline
Complete installation of 10 GB internet backbone and 100-500 MB network access at all district sites.	District ITSS Division; Facilities Dept.	7/2010 – 8/2011
Establish i21 computers standards for school-to-home programs.	Educational Technology Team; ITSS Division	7/2010 – 8/2010 for standards
Develop and maintain i21 interactive classrooms.	Educational Technology Team; ITSS Division	9/2010-6/2015
Provide options for schools to provide procurement strategies for schools to implement 3G internet access for students and teachers in School-to-Home programs.	District ITSS Division.	7/2010-6/2011
Investigate additional resources to maintain the desired refresh rate; implement a proof of concept on the feasibility of leasing and plan to acquire computers for student use and access to 1:1 computing opportunities.	District CITO	7/2010 – 6/2011
Acquire additional computers and academic software to maintain the desired refresh rate.	ITSS Division; school sites	7/2011 – 6/2012 then annually through 6/2015

Benchmarks:
- By 6/2011, 20% of district students will use computers at a one-to-one ratio on a regular basis, as measured by site reports and the State Technology Survey.

- By 6/2012, 40% of district students will use computers at a one-to-one ratio on a regular basis, as measured by site reports and the State Technology Survey.

- By 6/2013, 60% of district students will use computers at a one-to-one ratio on a regular basis, as measured by site reports and the State Technology Survey.

- By 6/2014, 80% of district students will use computers at a one-to-one ratio on a regular basis, as measured by site reports and the State Technology Survey.

- By 6/2015, 100% of district students will use computers at a one-to-one ratio on a regular basis, as measured by site reports and the State Technology Survey.

Target Group:
The target groups for this objective include district students, teachers, and site administrators.

Process for Monitoring:
The ETSP Evaluation Subcommittee will review site reports and State Technology Survey results (as available) to determine the percentage of district students who use computers at a one-to-one ratio on a regular basis. The Evaluation subcommittee will report its findings to the ETSP Committee.

5.d. Description of the process that will be used to monitor Section 5b and the annual benchmarks and timelines of activities including roles and responsibilities.

The monitoring process for the achievement of each objective is described in the prior sections. The Educational Technology Strategic Plan (ETSP) Committee will be established to provide oversight to the implementation of the technology plan and to evaluate its impact of district goals for student learning and classroom and school management. The ETSP Committee will establish an Evaluation subcommittee to review data and program reports collected district staff to determine whether the ETSP is achieving its goals and objectives.

The Educational Technology Director will serve as lead staff to the ETSP Committee, and will be responsible for providing semi-annual briefing reports of progress in implementing the plan and annual data on the impact of technology on student learning and attainment of the district's curriculum goals. The ETSP Evaluation subcommittee will review these reports at each semi-annual evaluation meeting. Each summer, the ETSP Evaluation subcommittee will conduct an in-depth review of all narrative reports, EdTechProfile and State technology Survey results and student achievement data.

The ETSP Evaluation subcommittee will identify the most successful practices and areas in which challenges have been encountered and improvements are needed, identify potential changes and improvements that could be made to the Educational Technology Strategic Plan, and make recommendations for changes to the plan to the full ETSP Committee for their review. The full ETSP Committee will prepare an annual report to the Superintendent and Board of Education concerning their findings and recommendations. The ETSP Committee also will share their data and conclusions with all key stakeholders, including teachers, school site administrators, central office staff and administrators, parents, students and community members. Please refer to Section 7 of this plan for a more comprehensive overview of the monitoring plan.

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6.   FUNDING AND BUDGET COMPONENT CRITERIA

6.a. List of established and potential funding sources.

There are several types of funding sources within the district:

- General fund. This is the district's unrestricted state and local funding. General funds are used to cover the majority of the district's ongoing operations, including books, supplies, employee salaries and benefits, instructional programs and professional development.

- Categorical funds. Categorical funds are state and federal funds that are restricted in their use to specific purposes and programs. In general, their intent is to provide instructional support to students beyond the educational program provided by the district. These funds are often used to acquire technology and support the integration of technology into the curriculum.

- Bond funds. Proposition S, passed by the voters in the City of San Diego in 2008, provides funding for the Integrated 21st Century (i21) Interactive Classroom Initiative which provides technology upgrades for 7000+ classrooms at the district's elementary schools, middle and high schools. The Proposition S bond measure will provide over $25 million per year through 2015 for educational technology (and a total of $400 million over 15 years).

- Grant funds The district receives grants from the state and federal government and from foundations and other organizations. The district usually must compete to win these grants, which are primarily categorical in nature, with restricted uses for the funding and full accountability to the funding agency for fulfilling the criteria and/or requirements of the grant. The district also receives donations of equipment and services from companies and organizations.

SDUSD also participates in a number of programs to reduce its costs for telecommunications and computers. These programs include:

- *E-Rate Program.* This federal program subsidizes a broad range of telecommunications services across the district.

- *CALNET Contract.* SDUSD participates in statewide contracts competitively bid and negotiated by the California Department of Governmental Services, which results in savings on telecommunications charges.

- *The California Teleconnect Fund*, operated by the California Public Utilities Commission, and which provides 50% discounts of most ongoing costs for telecommunications services provided by common carriers.

- *Western States Contracting Alliance*, cooperative multi-state contracting developed on behalf of public entities by the state purchasing directors from 15 western states, and which provides competitive prices on computers and peripheral products.

- The *California Multiple Awards Schedule* (CMAS), which provides contract terms and negotiated discounts on equipment and services through the California Department of Governmental Services.

SDUSD maintains a grants office that keep close watch on potential funding opportunities and that works with district staff to guide their development of competitive grant proposals. The Integrated Technology Support Services department staff members also stay abreast of new funding sources and opportunities.

6.b. Estimate annual implementation costs for the term of the plan.

The tables below provides an estimate of the full implementation costs for each of the five years of the Educational Technology Strategic Plan. The table includes technology acquired through the full range of budget resources available to the district. The cost estimates are reasonable and estimate the total cost of ownership

Budget Sources	Year 1 2010-2011	Year 2 2011-2012	Year 3 2012-2013	Year 4 2013-2014	Year 5 2014-2015
ITSS	20,816,078	24,833,366	27,183,366	29,058,366	31821402
Ed Tech	926,248	926,248	926,248	926,248	926,248
Title 1	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000
*Prop S	238,837	238,837	238,837	238,837	
State Facilities Fund	3,700,000	1,700,000	1,700,000	1,700,000	1,700,000
TOTAL	$27,281,163	$29,298,451	$31,648,451	$33,523,451	$36,047,650
*Prop S amounts above are for staff augmentation only and do not include the June 2, 2009 board approved i21 project infrastructure and hardware allocations.					

6.c. Description of the district's i21 sustainability and replacement plan for obsolete equipment.

In November 2008 San Diego voters approved a significant investment in new technology for district schools through Proposition S. The approved "Proposition S" bond measure will provide over $42 million per year through 2014 for educational technology (and a total of $400 million over 15 years.) Proposition S will provide funding for the SDUSD "21st Century (i21) Interactive Classroom Initiative," a five-year phased plan to implement the significant investment in new educational technology in public schools approved by San Diego voters. Beyond the initial Prop S investment in creating 21st Century Classroom, it is essential that the district fund a consistent hardware repair and replacement program to sustain transformation of classroom learning environments.

The industry standard for computer replacement is approximately every three years. Although three year is optimal, due to budget constraints, the plan proposes a 4 to 5 year replacement cycle depending on grade level. To accomplish this, the strategic technology plan calls for increased funding over the next five years to adequately address i21 computer upgrades and repairs. The Educational Technology and Information Technology departments will also work with the Educational Technology Strategic Plan Committee to develop viable policies and strategies for schools to address and better manage Total Cost of Ownership and provide for a sustainable replacement policy.

One of the ways in which technology equipment often enters the school district is through donations. While donated equipment can be beneficial, often it is old, requires repair, and adds to the maintenance burden of the district's hardware inventory. The district has addressed the situation by establishing minimum standards for donated equipment that can be accepted by schools. The donation acceptance policy was recommended by the Education Technology department and has been in effect since May 2000. The policy has helped to prevent the district from being a repository for outdated technology.

6.d. Description of the process that will be used to monitor Ed Tech Funding, implementation costs and new funding opportunities and to adjust budgets as necessary.

The district's annual budget process determines the level of general fund and categorical fund support that will be available for technology. The budget process begins each year with the Governor's proposed budget in January and May revision. Projected Proposition S funding is added to the budget forecast. The district adopts its annual budget in June of each year, and revises that budget as needed when the state legislature passes the state budget. Grants occur on their own timeline, independent of the district's regular budget process. If additional restricted funding for technology become available, the district may change its priorities for less-restricted funding accordingly.

The Educational Technology Strategic Plan Committee will have the overall responsibility for monitoring the technology budget and making recommendations to the Superintendent and

Board of Education concerning technology expenditures. The following groups will participate in the feedback loop used to monitor progress and update funding:

- The Educational Technology Director and the Information Technology Department Director will review and update the technology budget and funding plan on a quarterly basis, and present updated information to the Educational Technology Strategic Plan Committee.

- Site Principals will evaluate their needs and available resources of their school, and re-allocate resources as necessary. The Educational Technology Director will collect information about these reallocations and summarize it in the quarterly reports provided to the Committee.

- School Site Councils will work with site principals to allocate site categorical funds to meet their technology needs.

- The Grants Office will provide information to the CITO and Educational Technology Director about technology-related grants. The Educational Technology Director will include this feedback in the semi-annual reports to the Educational Technology Strategic Plan Committee.

7. MONITORING AND EVALUATION COMPONENT CRITERIA

7.a. Description of the process for evaluating the plan's overall progress and impact on teaching and learning.

District administrators and other central office staff members will be responsible for the oversight and coordination of the Educational Technology Plan's implementation. The district will form the Educational Technology Strategic Plan (ETSP) Committee to oversee ongoing planning, implementation, monitoring and evaluation of the ETSP. The Superintendent or designee will name representatives of district schools and central office departments to serve on the ETSP Committee. Stakeholders groups will be represented on three subcommittees:

1. The Executive Committee, will be led by the Chief Information and Technology Officer (CITO) and will include the leadership of each district division, will be responsible for the oversight of the EETT formula grant program and the overall implementation of the ETSP.

2. The Implementation Subcommittee, which will consist of representatives of each of the key district departments participating in the implementation of the plan plus student, teacher, site principal and community representatives. This Subcommittee group will review the implementation plans and their progress in achieving them on an ongoing basis. Subcommittee members will coordinate the implementation activities to promote successful integration of technology into teaching and learning.

3. The Evaluation Subcommittee, which will review the data collected by the implementation committee and program staff to determine whether the ETSP is achieving its objectives and goals. The Evaluation Subcommittee will include representatives of the district divisions implementing the plan, other district administrators, teachers and staff, and students, parents and community members who accept the invitation to serve on the committee.

The organization of the Educational Technology Strategic Plan Committee is presented below:
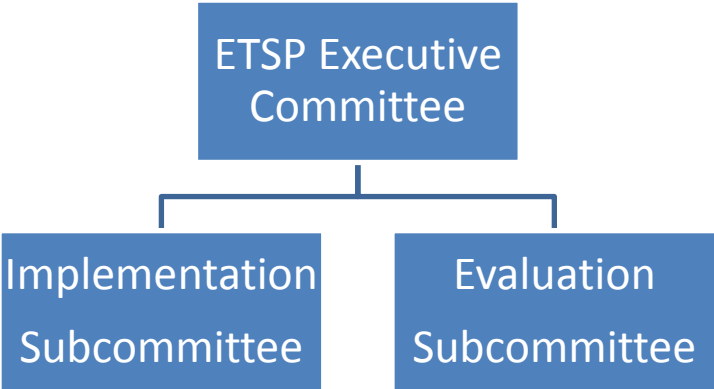
The Director of Educational Technology will serve as lead staff to the ETSP Executive Committee and Evaluation subcommittee. At the beginning of the first year of the plan, the Educational Technology Director and staff will identify all of the evaluation data needed for the plan, the baseline for that data, and the additional requests for site and central office staff feedback that will be required to evaluate the achievement of each objective.

The Educational Technology Director and staff will meet regularly with the Implementation Subcommittee to monitor progress in the implementation of the Plan. The Educational Technology Director and staff will provide the Evaluation subcommittee with semi-annual briefing reports of progress in implementing the plan, and will provide annual data on the impact of technology on student learning and attainment of the district's curriculum goals. The annual benchmarks for each objective that are listed in the plan will be used as indicators of success.

The ETSP Evaluation subcommittee will review these reports at their regularly scheduled evaluation meetings, and approve the semi-annual evaluation briefing report. Each summer (at the end of a project year), the ETSP Evaluation subcommittee will conduct an in-depth evaluation review. As part of this evaluation process, the ETSP Committee will review reports from staff responsible for implementing each component of the plan, the results of the annual EdTechProfile technology use and proficiency surveys, the annual State Technology Survey, and annual data on student achievement (including STAR assessment results).

7.b. Schedule for evaluating the effect of plan implementation.

The Evaluation Subcommittee will meet during the first quarter of the ETSP plan duration (between September and November, 2010) to review the data to be collected for the evaluation of the Plan, the sources of that data, and to identify and develop additional surveys and questionnaires needed to obtain all of the information required to assess the progress in implementing the activities of the plan and the student and teacher outcomes that result.

The Educational Technology Director and staff will prepare semi-annual briefing reports that summarize the information available and collected each semester. The Evaluation Subcommittee will then meet regularly during each Plan year to review and discuss the briefing reports prepared by staff. The Evaluation Subcommittee will review and analyze the progress made in implementing scheduled activities within each objective of the plan, progress in implementing hardware and software components of the plan, and participation in data collection activities (including site participation in the State Technology Survey and teacher and administrator participation in the EdTechProfile Technology Use Survey). The Evaluation Subcommittee will discuss their findings, identify potential areas for change in program activities and their implementation, and will forward their recommendations to the Implementation Subcommittee for discussion and feedback.

The Evaluation Subcommittee will then conduct a summary evaluation of program progress and student, teacher and staff outcomes at the end of each ETSP program year (in July or August of each year, starting in 2011).

7.c. Description of the process and frequency of communication evaluation results to tech plan stakeholders.

The ETSP Evaluation subcommittee will use the results of the regular program reviews, feedback from the Implementation subcommittee, and the annual outcomes review to identify the most successful practices and areas in which challenges have been encountered and improvements are needed. The Evaluation subcommittee will identify potential changes and improvements that could be made to the Educational Technology Strategic Plan based on their analysis. The Evaluation subcommittee will make recommendations for changes to the plan to the ETSP Executive Committee for their review.

The ETSP Executive Committee will review the Evaluation subcommittee's reports, and will develop findings and recommendations concerning changes to the plan. The ETSP Executive Committee will then review their findings and recommendations with the full ETSP Committee, which will reach consensus on the findings and recommendations to be forwarded to the district Executive Cabinet and Board of Education.

The Educational Technology Director and staff will draft an annual report to the Chief Information and Technology Officer relaying the ETSP Committee's findings regarding the successful implementation of the SDUSD Educational Technology Strategic Plan. The ETSP Committee will approve and then forward the annual report to the Chief Information and Technology Officer (CITO). Reports of ETSP implementation progress and changes made to the plan also will be sent to the SDUSD Executive Cabinet members so that they can make informed decisions concerning funding, training and support.

The San Diego Board of Education has established Operational Expectations for technology that call for the superintendent to assure the effective use of technology to support teaching and learning and to enable efficient administration of the district's operational functions. The Board of Education identified eight components of the Operational Expectations for technology:

1. Develop a comprehensive technology plan that directs priorities and outcomes for the expenditure of technology resources.

2. Maintain a comprehensive and functional technology infrastructure ensuring efficient academic and business operations.

3. Establish technology proficiency expectations for staff and provide necessary staff development.

4. Develop and effectively communicate a compelling and realistic vision of technology use in the learning environment, now and in the future.

5. Provide to students, parents and community electronic access to appropriate information about school and district programs and academic progress.

6. Provide easily accessible, relevant and current data to appropriate users to direct school and instructional improvement planning.

7. The superintendent may not collect or store personal information about students or staff that does not have an educational purpose or that is not appropriately authorized.

8. The superintendent may not use methods of collecting, reviewing, transmitting, or storing information that fail to protect against improper access.

The Chief Information and Technology Officer (CITO) will review the ETSP Committee's annual report and use it to help assess the district's success in achieving the eight Operational Expectations for technology. The CITO will prepare regular reports to the Superintendent and Board of Education concerning the achievement of the Operational Expectations and the findings and recommendations of the ETSP Committee.

The ETSP Committee also will share their data and conclusions with all key stakeholders, including teachers, school site administrators, central office staff and administrators, parents, students and community members. Information will be shared through the district Intranet system, by posting summaries of ETSP Committee findings on the district website, and through ongoing newsletters and other forms of district communications with parents and the community. The results of the evaluation will be shared at Principals' meetings and will be reviewed with site technology teams so that they may make appropriate modifications to their site plans.

8. EFFECTIVE COLLABORATIVE STRATEGIES WITH ADULT LITERACY PROVIDERS TO MAXIMIZE THE USE OF TECHNOLOGY

8.a. If the district has identified adult literacy providers, description of how the program will be developed in collaboration with them.

San Diego City Schools, the San Diego Community College district, and the San Diego City Libraries are the main adult literacy providers in the region.

San Diego Public Library: READ/San Diego. READ/San Diego is a free literacy, English as a Second Language and family literacy instruction service provided by the San Diego Public Library for adults 18 years of age and older. The program is supported by the City of San Diego and the County of San Diego, with contributions from local businesses, civic and service organizations, individuals and the State of California.

READ/San Diego is staffed by literacy professionals who coordinate the efforts of volunteer reading tutors and cooperate with local adult schools, community colleges and other literacy education provided in making and receiving student referrals. The program's headquarters is located at the Malcolm X Library and Performing Arts Center in southeastern San Diego. An integral part of READ/San Diego is its in-house computer lab, which is equipped with Macintosh and PC computer workstations and comprehensive software systems. The lab offers a wide selection of programs to help learners improve language skills, reading, writing, spelling, math, typing, GED and job preparation skills. Training and support are provided by a lab coordinator and trained volunteer assistants.

READ/San Diego tutors receive comprehensive training, including intensive training in learning disabilities. Tutors generally meet with their students twice a week for a total of 3 hours at one of the City and County's 69 libraries or a mutually convenient public facility provided by community partners. SDUSD provides space at its Ballard Parent Center for the READ/San Diego program.

San Diego City Schools Adult Literacy Programs. Technology also will be integrated as appropriate into the following adult literacy programs run by the district:

- Community-Based English Tutoring Program (CBET). The CBET program provides free adult English language and Family Literacy instruction to parents and community members who pledge to provide personal English language tutoring to California K-12 children with limited English proficiency. The program allows participants to improve English conversation, reading and writing skills, learn how to help their children in school, learn parenting techniques, practice reading to children, tutor K-12 students and meet other parents at their child's school. Free babysitting is provided while parents participate in the program. The CBET program currently is offered at 17 elementary schools within the district. SDUSD operates the CBET program in cooperation with the San Diego Community College district Continuing Education division.

- SDUSD Adult Education High School Diploma Program. This no-fee program provides students the opportunity to complete credits required to earn a high school diploma. The program is open to students who are at least 16 years of age and are no longer attending school. It is currently offered at five high school sites (Crawford, Garfield, Hoover, Madison, and Mira Mesa High Schools).

San Diego Community College District. The San Diego Community College District (SDCCD) Continuing Education division offers free adult non-credit classes in basic education, high school completion, ESL, vocational training, citizenship, consumer science, home economics and child development, classes for students with disabilities, classes for older adults, and health and safety. In addition to its partnership with SDUSD to operate the CBET program, SDCCD Continuing Education provides the following programs:

- The High School Diploma Program/GED. SDCCD Continuing Education offers the opportunity for students to complete a high school diploma while earning college credits. Traditional classroom instruction is offered in day and evening classes in all required high school subjects (including algebra, American literature, economics, computer literacy, mathematics, U.S. Government, and U.S. History). SDCCD Continuing Education also offers General Education Development (GED) preparation classes, pre-tests and practice tests. The SDCCD Continuing Education high school diploma and GED programs are no-fee.

- English as a Second Language (ESL). The ESL program offers English classes for non-native speakers of English. Students must be at least 18 years old and a resident of California. There are seven levels of instruction, ranging from classes for those with no English skills to classes for those with advanced skills. Vocational English as a Second Language classes are offered to help students learn the English, math and basic computer skills needed to succeed in a job training program, learn work-related vocabulary and phrases, learn American English pronunciation, and practice job interviewing techniques. Classes are offered at all SDCCD Continuing Education centers. SDCCD Continuing Education also offers ESL/Citizenship classes and TOEFFL test preparation. Almost 32,000 students participated in the SDCCD ESL program in the 2007-2008 school year.

- Adult Basic Education. The Basic Education program introduces and reviews basic skills at three levels in reading, writing, math, spelling, vocabulary, communication and critical thinking. Emphasis is on identifying and mastering facts, terms and learning strategies, and applying knowledge. The Basic Education program offers courses in reading development (levels 1-6) and arithmetic review (covering basic arithmetic skills, operations with whole numbers, fractions and decimals, and common measures).

Collaboration in the SDUSD Educational Technology Strategic Plan. SDCCD Continuing Education and San Diego Public Library READ/San Diego programs are partners with SDUSD in the tech plan. Staff members from SDCCD Continuing Education and the San Diego Public Library provided input to and reviewed the draft Educational Technology Strategic Plan; their comments were incorporated into the plan. The SDCCD Continuing Education and San Diego Public Library READ/San Diego programs also collaborate with SDUSD on planning and

implementation of adult literacy programs. SDUSD and SDCCD jointly operate the CBET program, and work closely to articulate their educational programs to provide a seamless transition for students.

SDUSD collaborates with both SDCCD Continuing Education and READ/San Diego on activities offered at the Harold J. Ballard Parent Center. Located in a former elementary school in the Old Town area of San Diego, the Ballard Parent Center is home for the district's San Diego Parent University. Parent University is designed to help parents become more involved in their children's education as academic coaches, to strengthen parenting skills, and improve child-parent relationships. Parents can select academic classes to help support homework, reading, writing, study skills and math. The Ballard Parent Center, in collaboration with SDCCD Continuing Education, provides "Parents and Children Learning Together," a class in which parents and their children (2 to 5 years of age) learn together in a preschool setting. The class includes sessions to help English language learners develop English fluency. The Ballard Parent Center also offers READ/San Diego literacy instruction and one-on-one adult English tutoring. The Parent Center has an extensive parent lending library with parenting books, children's books and videos, and has computers available so parents can access the Internet. Transportation is provided to selected Title 1 schools in the district.

SDCCD Continuing Education and READ/San Diego, through their review of the Educational Technology Strategic Plan, agreed that the activities and actions of the Plan are consistent with Adult Literacy outcomes:

- The activities are designed to support student access to rich academic content, and thereby to improve student achievement of basic education and literacy skills.

- The activities designed to support instructional planning and implementation by providing teachers and administrators with better access to student information.

- The activities provide additional opportunities for teachers to communicate with students outside of the classroom.

SDUSD, SDCCD Continuing Education and READ/San Diego collaborate to share strategies and funding resources to maximize the use of technology by collaboratively operating programs, and sharing facilities and technology access. The access to instructional technology and rich content materials that is developed through the activities of the Educational Technology Strategic Plan will be available to all district programs, including the Adult Education High School Diploma program and the CBET program, operated in collaboration with SDCCD Continuing Education. Programs at the Ballard Parent Center (including the literacy instruction and English tutoring offered with READ/San Diego) will have access to the technology resources provided to the Center through the plan.

9. EFFECTIVE, RESEARCH-BASED METHODS, STRATEGIES AND CRITERIA

9.a. Summarize the relevant research and describe how it supports the plan's curricular and professional development goals.

Student Target Group. The SDUSD Educational Technology Strategic Plan will focus on developing the technology skills of all students but particularly of students in middle school, so that by the 8th grade all students achieve the technology skills identified in the *No Child Left Behind* Act. The integration of technology into the curriculum appears to have the greatest impact in middle school. In a landmark study that analyzed a national database of student test scores, Wenglinsky (1998) found that technology had more of an impact on mathematics score in middle schools that it did in elementary schools (Valdez et. al, 1999). In a statewide evaluation of the Idaho technology initiative, the Idaho Council for Technology in Learning (1999) concluded that there was a positive relationship between the integration of technology and student academic performance in core studies, language, math and reading, and that the gains were greater for 8th graders than for 11th graders.

The Digital Disconnect Between Students and Schools. The U.S. Department of Education obtained students' perspectives for the development of the National Education Technology Plan through an online survey of 210,000 K-12 students (NetDay, 2003). They identified several major themes from the students' comments (U.S. Department of Education, 2004, p. 19):

- Today's students are very technology-savvy, feel strongly about the positive value of technology and rely upon technology as an essential and preferred component of every aspect of their lives.

- Students are not just using technology differently today but are approaching their lives and their daily activities differently because of the technology.

- As students get older, their use of technology becomes more sophisticated, but, comparatively, the younger students are on a fast track to becoming greater technology users and advocates.

- The access point for technology use, particularly for older students, is home-focused, not school-focused.

- Today's students are ultra-communicators.

The U.S. Department of Education noted that even students from low-income groups who do not have access to technology at home see and find it – using computers at schools, libraries or at friends' homes (NCES, 2003).

The National Education Technology Plan (2004) concluded that while there is no disagreement over the need for American students to have the knowledge and skills to compete in an increasingly technology-driven world economy, the educational community is far behind both the business community and tech-savvy students in the use of technology. This "digital disconnect" is a major cause of frustration among today's students, leading to the risk that public schools that do not adapt to their students' technology needs will become increasingly irrelevant. The U.S. Department of Education concludes that "Technology ignites opportunities for learning, engages today's students as active learners and participants in decision-making on their own educational futures and prepares our nation for the demands of a global society in the 21st century" (2004, p.46).

21st Century Skills. What are the demands of a global society in the 21st century? The Partnership for 21st Century Skills is a public-private organization formed in 2002 to answer this question and create a successful model of learning that incorporates 21st century skills into the U.S. system of education. They identified six key elements for fostering 21st century learning:

1. *Emphasize core subjects*, identified by the *No Child Left Behind* Act as English, reading or language arts, mathematics, science, foreign languages, civics, government, economics, arts, history and geography.

2. *Emphasize learning skills*, including information and communication skills, thinking and problem-solving skills, and interpersonal and self-directional skills.

3. *Use 21st century tools to develop learning skills*, including the information and communications technology (ICT) tools essential to everyday life and workplace productivity.

4. *Teach and learn in a 21st century context*, using real-world examples, applications and experiences both inside and outside the school to learn academic content.

5. *Teach and learn 21st century content*, including global awareness, financial, economic and business literacy, and civic literacy.

6. *Use 21st century assessments that measure 21st century skills*, including a balance of classroom assessments for improved teaching and learning in the classroom and high-quality standardized testing for accountability purposes.

Technology and Learning Gains. 21st-century information and communication tools as well as more traditional computer-assisted instructional applications can positively influence student learning processes and outcomes (Cradler, McNabb, Freeman & Burchett, 2002). Technology has been positively linked to increasing student motivation, learner engagement, communication and collaboration, and problem-solving skills (Sandholtz et. al, 1997; Ringstaff & Kelley, 2002).

When technology is used to perform tasks applying higher order concepts and when teachers are proficient at directing students toward productive uses, technology is associated with learning gains that can be significant (Glennan & Melmed, 1996; Reksten, 2000; Coley, 1997; Schlechty,

1997; Penuel, Golan, Means & Korback, 2000; Kimble, 1999). Students who used computers for simulations and applications to enhance higher-order thinking skills performed better on the National Assessment of Educational Progress (NAEP) than did students whose teachers used technology for drill and practice (Valdez et. al, 1999).

A quantitative synthesis of 42 research studies found a modest, positive effect of teaching and learning with technology on student outcomes. The authors concluded that these results can be generalized across a wide variety of conditions, as well as across student, school and study characteristics (Waxman, Lin & Michko, 2003). Numerous studies document student understanding of mathematics concepts from using computer-based and computer-assisted software (Cradler et. al, 2002). In a landmark study that analyzed a national database of student test scores, Wenglinsky (1998) found that technology can have a positive effect on students' mathematics scores.

Education Technology Strategies and Methods. SDUSD has identified strategies in three key areas to utilize technology to support teaching, learning and student achievement: (1) an integrated information system; (2) integration of technology into the curriculum; and (3) professional development. Each of these strategies is based on relevant research, which is summarized below.

Integrated Information System. Most schools districts have not yet begun to utilize technology to improve access to student data. The technologies used to collect and store student information are aging and frequently incompatible. Rather than being aggregated, information usually is siloed, redundant and difficult to share. This makes it difficult to obtain the data needed to make the best instructional and management decisions to benefit student learning (U.S. Department of Education, 2004). High performing schools view and use technology not as an end in itself but as a means of collecting, analyzing and reporting data to improve curriculum and instruction, and to identify achievement gaps for individual students and groups of students (Rasher, Abromitis & Johnson, 2004, p. 35).

The district has begun the process of developing an integrated information system and content management system that will provide online access to educational resources, tools and information for teachers, students, administrators, staff, parents and community members. The integrated information system and content management system will support these uses by making student record keeping and assessment more efficient. Implementation of the district integrated information system involves the development and implementation of Internet and network access, business applications, and a student information system integrated with student information data warehouse. Users will access the system through a Content Management System, which will provide: (1) teacher access to educational administration applications (attendance, grading, etc.) and educational technology applications and support; (2) student access to educational technology applications and support, including teacher's class websites; (3) parent access to district, school, classroom and student information; (4) community access to district and school information; and (5) staff and administrator access to district business applications.

The Content Management System will provide a Web portal designed to save time and frustration for a teacher by bringing varied technology resources into one place with one password. Common applications such as email, the grading system, student information system, and Google will be accessible in the same environment, and reference tools (such library catalog and subscription databases) also will be available. A teacher who wants to put together a media-rich learning activity or lesson plan can simply log onto the portal and have a multitude of resource available (Prouty, 2004).

The integrated information system also will provide communications technology accessible to students. Technology can provide the means for students with special needs to communicate via email and use the Internet for research, and can also help teachers accommodate students' varying learning styles" (Silverstein, Frechtling, & Miyoaka, 2000).

Integration of Technology into the Curriculum. Technology can be an appropriate vehicle for promoting meaningful, engaged learning. "It allows students to work on authentic, meaningful and challenging problems, similar to tasks performed by professionals in various disciplines; to interact with data in ways that allow student-directed learning; to build knowledge collaboratively; and to interact with professionals in the field. Technologies also can be used to promote the development of higher-order thinking skills and allow opportunities for teachers to act as facilitators or guides and often as a co-learner with the students." (Gahala, 2001).

Research and evaluation shows that technology can enable the development of critical thinking skills when students use technology presentation and communication tools to present, publish, and share results of projects (Cradler et al, 2002). When students use the Internet to research topics, share information, and complete a final project within the context of a semi-structured lesson, they became independent, critical thinkers (Coley, Cradler & Engel, 1997). When students learn to use and apply applications used in the world of work, such as word processors, spreadsheets, computer-aided drawing, website development programs and the Internet, they acquire some of the prerequisite skills for workforce preparedness (Cradler et. al, 2002).

Several key strategies will be used to integrate technology, instructional software and online learning supports into all curricular areas so that students develop the 21st century information and communications technology skills that will support their learning and success in the working world. These key strategies include:

- *Standards setting*. Learning goals should drive technology use. The initial task is to develop a clear set of goals, expectations, and criteria for student learning based on national and state educational standards. The school can then determine the types of technology that will support those goals (Gahala, 2001). The district will form a technology skills standards review group that includes representatives of the academic content departments, teachers, and the Educational Technology Department. This group will review, revise and develop educational technology standards for student achievement at grades 5, 8 and 12 (graduation). The content departments will ensure that all curriculum maps and guides incorporate strategies for technology integration.

- *Selection of appropriate content and applications.* Meta-analyses of computer-based instruction studies concluded that computer-assisted instruction and drill and practice software can significantly improve students' scores on standardized achievement tests (Kulik & Kulik, 1987; Kulik, 1994; Sivin-Kachala & Bialo, 2000), and in all major subject areas, preschool through higher education (Coley, 1997). In addition, research has found that mathematics courses that emphasize small-group processes, analyses or real world situations, the use of computational tools, and incorporate adaptive tutoring software into the curriculum can result in improved mathematics skills as measured by standardized assessments. (Koedinger, Anderson, Hadley & Mark, 1997). However, many teachers find it difficult to find and use appropriate software for instruction, and need guidance in locating software and Internet sites to support learning goals (Glenn, 1997). Therefore, the district content departments, site teachers and administrators, and the Educational Technology Department will collaboratively review and recommend software and online tools that can be used to support learning for students who are below grade level in literacy or in math, and for students who need assistance developing English language proficiency.

- *Coaching and mentoring.* Providing classroom-embedded mentoring, tutoring or follow-up activities is among the most effective methods of technology training, and avoids the problem of having to ask teachers for additional time outside the school day (Corcoran, 1995; Gahala, 2001). Teachers are more likely to apply new instructional strategies if they receive feedback and support while trying the new strategies in their classrooms (Gahala, 2001). Teachers who engage in collaborative planning and sharing of instructional strategies with other teachers most frequently demonstrate effective use of computers in the classroom (Becker & Riel, 2000).

Teachers learn best when engaged in meaningful projects that relate to their own classrooms (Gahala, 2001). They need long-term professional development to adapt and infuse curricula with technology (Wetzel, 2001a, 2001b; Wetzel, Zambo, Buss & Padgett, 2001). Individual tutoring, peer coaching, collaboration, networking and mentoring have been used successfully over extended periods to help teachers at all levels of technology implementation develop technology applications that promote engaged learning (Gahala, 2000l; Ike, 1997; Mckenzie, 1994; Miller, 1998; Norton & Gonzales, 1998; Poole & Moran, 1009; Saye, 1998; Tenbusch, 1998; Yocam, 1996). Mentors who can help teachers adapt technology applications to their classroom needs are important to the success of innovative uses of technology (Zhao, Pugh, Sheldon & Byers, 2002); considerable time for collaborative learning and practice is required for teachers to gain confidence in using technology (Coley, Crader & Engel, 1997). Strudler (1994) stressed the need for a technology coordinator at the school site who can serve as a mentor or "translator" or technology applications and instructional integration for teachers. Therefore, SDUSD will identify key teachers who are academic leaders at the school sites, and will train them to serve as i21 Lead Technology Teachers to help build the technology use and integration capacity of the teachers at their school site.

- *Curriculum development integrated with staff development*. There is significant evidence that the learning and sustaining of new instructional approaches are directly connected to the degree that teachers are engaged in planning and evaluating classroom instruction (Cradler, 2002; Calhorn, 2002). This model of on-going professional development focused on continuous improvement (called Action Research) will be utilized to drive the integration of technology that ultimately will improve student learning. The Educational Technology Department will provide intensive training and support to the teachers at the district's new schools, to prepare them to use the technology resources designed into their school facilities and to integrate them into their teaching. The Educational Technology Department will work closely with the Beginning Teacher Support and Assessment (BTSA) induction program to help prepare new teachers to utilize effective technology in their content area to support student learning and for their own professional development.

*Professional Development. Although virtually every sc*hool in the United States has access to the Internet, computers usually are not a central part of the learning experience (Levin & Arafeh, 2002). The 2004 National Education Technology Plan concluded that the problem does not result from a lack of funds, but results more from a lack of adequate training and lack of understanding of how computers can be used to enrich the learning experience (U.S. Department of Education, 2004).

In their review of over 300 studies of technology use, Sivin-Kachala & Bialo (2000) concluded that teacher training was the most significant factor influencing the effective use of educational technology to improve student achievement. Wenglinksy (1998) found that students whose teachers received professional development on computers showed gains in math scores of up to 13 weeks above grade level. The integration of technology into curriculum and instruction requires professional development that will result in improving student learning (Cradler, McNabb, Freeman, Burchett, 2002).

Successful implementation of the SDUSD Educational Technology Strategic Plan will require a fundamental change in teacher beliefs, attitudes, and instruction. Most teachers have not experienced the kind of teaching with technology and inquiry that they are now being asked to do. Research on how effective change occurs in educational settings has found that change occurs through active engagement with new ideas, understandings, and real-life experiences (Fullan, 1991, 1993). In addition, Elmore (2000, 2002) showed that the practice of improvement must make the connection between teaching practice and student learning more clear and direct. New ideas and learning need to be connected through the context of specific curriculum content and specific instructional problems.

The integration of technology into curriculum and instruction requires professional development that will result in the highest probability of improving student learning (Cradler, McNabb, Freeman, Burchett, 2002). There is significant evidence that the learning and sustaining of new instructional approaches are directly connected to the degree that teachers are engaged in planning and evaluating classroom instruction. This model of on-going professional development focused on continuous improvement is often called action *research* (Cradler, 2002; Calhoun, 2002). Teachers need opportunities to experiment and conduct action research using technology within the context of specific content (U.S. Department of Education, 2001). Teachers engaged

in collaborative planning and sharing of instructional strategies more effectively use technology in the classroom (Becker and Riel (2002). When teachers receive a project-based approach to staff development, they in turn apply project-based teaching principles to their own teaching (Cradler & Crader, 2002).

When teachers are learning to integrate technology into their classrooms, the most important staff development features include opportunities to explore, reflect, collaborate with peers, work on authentic learning tasks, and engage in active, hands-on learning (Kelley & Ringstaff, 2002; Schacter, 1999). When teachers develop and implement personalized plans for the integration of technology into the curriculum, there were greater increases in student learning and sustained infusion of technology into instruction (Cradler, 2002a).

The SDUSD Educational Technology Strategic Plan focuses staff development on the instructional strategies that teachers use in the classroom. The i21Lead Technology Teachers will provide support and guidance to teachers as they apply what they learn to their teaching.

Education Technology Models and Strategies. The Educational Technology planning group reviewed a wide range of education technology models, identified which components of each model would or would not be feasible in San Diego City Schools (a very large school district with very limited resources), and used the components that the group deemed most feasible to develop the strategies included in this Plan. Education technology models and strategies that were reviewed include:

- *The Total Information Management System* (TIM) implemented by the Poway Unified School District in San Diego County and highlighted in the National Education Technology Plan (2004). This system includes a data warehouse that pulls relevant data from the student information system, human resources, special education, student assessment, and delivers up-to-date, on-command information to the teacher. It provides profiles of the students within a class, including current and historical data and contact information for the student and parents. The system also provides ready email links to other teachers. Teachers can use the data provided by the system to drive instructional practice. The SDUSD Educational Technology Strategic Plan includes a significant focus and investment in developing a student information system (with data warehouse) that will provide this kind of information for teachers. The SDUSD plan includes professional development to help teachers learn how to access the system and use the data obtained to impact instruction and student achievement.

- *The Curriculum Technology Integration Plan* (Cradler & Cradler, 2000), which includes a process for continually incorporating research findings into instructional strategies and curriculum planning. CTIP is an action-research process that supports continuous assessment at the classroom, school or district level followed by modifications of the instructional setting as needed. Features of the CTIP model include: defining standards-based objectives for learners; defining specific tasks students will be doing and the interactions between students, technology and teachers; describing the materials and equipment needed, and where and how long the activities will be; identifying assessments to evaluate student work; and identifying a process for informing students, other teachers,

parents and administrators of the extent to which the learning standards are reached or exceeded. The SDUSD Educational Technology Strategic Plan has adopted components of the CTIP model, including its focus on technology standards to create learning objectives for students.

- *The Apple Classroom of Tomorrow* model (Dwyer, Ringstaff & Sandholtz, 1991), which identifies five general phases of technology implementation:
  (1) Entry phase, in which technology is first introduced;
  (2) Adoption phase, in which technology is integrated into the traditional classroom (traditional lecture and textbook teaching methods still predominate) and with little change in student achievement;
  (3) Adaptation phase, in which traditional teaching methods are consistently supported with computer activities (particularly the use of office productivity software), resulting in increased efficiency in the classroom;
  (4) Appropriation phase, which hinges on each teacher's personal mastery (appropriation) of the technology. This phase results in more innovative instructional strategies, marked by team teaching and interdisciplinary project-based instruction.
  (5) Invention phase, in which teachers are willing to experiment and change, and view learning as an active, creative and social interactive process.

  The SDUSD Education Technology planning team agreed that most district teachers are in the adoption and adaptation phases of this model. The district's Educational Technology Strategic Plan is designed to help teachers develop the personal mastery of and comfort with technology needed to help them advance to the appropriation and invention phases, resulting in improvements in student achievement.

SDUSD also reviewed a number of models described in the National Education Technology Plan (2004) that, although effective in other school districts, were not considered by the planning team to be feasible for adoption at this time. The size of the district would make some models difficult to adopt (for example, a model that abolishes grade levels and instead focuses on individual learning plans for each student, as adopted by the Chugach School District). The availability of financial resources restricts the SDUSD's ability to implement components of other model programs, including those that supply every student with their own computer (Henrico County, Virginia) and those that provide students with home access to computers and the Internet (eSPARC, a regional technology program of the Pennsylvania Department of Education).

The SDUSD planning team reviewed with great interest those models that utilize distance learning for student instruction and professional development (the Florida Virtual School, the West Virginia Virtual School, and Louisiana's Online Professional Development program). The SDUSD Educational Technology Strategic Plan incorporates online teacher and staff training in its professional development program. The development of the district technology infrastructure described in the district Educational Technology Strategic Plan will provide the foundation needed for the district to implement more distance learning strategies in the future.

The Implementation Process. SDUSD recognizes that implementation of the Educational Technology Strategic Plan requires substantial organizational change. The successful implementation of the plan will require that individual teachers, staff and administrators change their accustomed work practices and procedures. To understand and predict the likely progression of this change, the Educational Technology Workgroup reviewed research on the Technology Adoption Lifecycle, a model of the adoption of new technology in organizations.

First developed in 1957 at Iowa State College, the original purpose of the Technology Adoption Lifecycle was to track farmer's purchases of hybrid seed corn. Everett Rogers broadened the use of the model in his 1962 book *Diffusion of Innovations* (fifth edition, Free Press, 2003), in which he argued that people can be classified into five categories, according to when they first begin to use a new idea. People in an organization also fit into these five categories in regards to their adoption of technology (Abers, 2004; Moore, 1991). The five categories include:

1. Innovators. Making up 2.5% of the population, innovators are daring, rash and risky. They are technology-savvy visionaries who are eager to try new ideas, undaunted by complexity and risk, and willing to make organizational changes. They are able to cope with a high level of uncertainty. The innovator plays a gatekeeping role in the flow of new ideas into a system.

2. Early Adopters. Making up 13.5% of the population, the early adopter is the opinion leader who often serves as a role model for others. They are future-focused, competitive, and willing to make organizational changes. Early adopters are more integrated into society than the innovators. The early adopter decreases uncertainty about a new idea by adopting it, and then conveying his or her evaluation of the innovation to others in the organization through interpersonal networks.

3. Early Majority. The early majority makes up 34% of the population, and will adopt new ideas just before the average member of a system. People in the early majority are pragmatists who believe that technology helps improve productivity. They generally require complete systems of hardware, software, associated support, and educational resources.

4. Late Majority. Making up another 34% of the population, members of the late majority adopt new ideas just after the average member of a system. They usually are conformists who feel that they must adopt a new technology because everyone else is doing so, and because they do not want to be left behind. Adoption may be both an economic necessity for the late majority, and the result of increasing network pressures from peers.

5. Traditionalists. The final 16% of the population generally have low tolerance for risk, and are the last in a social system to adopt an innovation. They often are suspicious of innovations and change agents, and their innovation-decision process is relatively lengthy.

Although the Technology Adoption Lifecycle tends to follow the typical bell curve that describes populations, Moore (1991) argued that, with emerging technologies, the rate of diffusion is not

continuous. Instead, he described a "chasm" between the early adopters and the early majority. This chasm results in part from a difference in goals: while the early adopter wants to be among the first to implement technology change in their organization, the early majority is more interested in productivity improvements.

SDUSD has relied on this research on the diffusion of innovations to establish its objectives for technology implementation within the school district. In instances in which a teacher or staff member is responsible for choosing to implement technology (such as integrating technology into the curriculum), we estimate that 80% of the population (all but the traditionalists) will implement the technology within the five-year timeframe of the plan. Although the traditionalists make up 16% of the population in the theory of the diffusion of innovation, we expect that percentage to be higher in education. As U.S. Secretary of Education Rod Paige noted in 2004, "Education is the only business still debating the usefulness of technology. Schools remain unchanged for the most part, despite numerous reforms and increased investments in computers and networks." (U.S. Department of Education, 2004, p. 22).

In addition, the Technology Adoption Lifecycle research points out the need to recognize the potential chasm between the early adopters in the organization and the early majority. The Educational Technology Workgroup paid particular attention to those proposed innovations that, to date, less than 20% of the organization has adopted. This level of adoption suggests that SDUSD may be facing the diffusion chasm in these innovations, and must take appropriate steps to overcome the obstacles to the adoption of these technical innovations.

9.b. Description of the district's plans to use technology to extend or supplement the district's curriculum with rigorous academic courses and curricula, including distance learning technologies.

To succeed in school and their careers, students must develop both a deep knowledge of the core academic content areas identified by No Child Left Behind (English language arts, science, mathematics, geography, history, economics, world languages, government and civics, and arts) and the 21st century skills they will need to apply their knowledge, work with others and manage their lives (Kay, 2009).   The SDUSD i21 Project is designed to create an engaging, interconnected 21st century learning environment that, coupled with ongoing teacher professional development:

- *creates opportunity for new learning practices that will support the teaching and learning of 21st century skill outcomes;*
- *allows all students to become expert learners in relevant, real world 21st century contexts (e.g., through project-based or other applied work);*
- *provides 21st century architectural and interior designs for group, team and individual learning, and;*
- *provides universal design in quality learning tools and technology resources.*
  (adapted from Partnership for 21st Century Skills)

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None of these above points happen in isolation and without a guiding teacher who has received professional development designed to intersect three key areas of knowledge: content, pedagogy and technology.

Technological Pedagogical Content Knowledge (TPACK) is a model for *i21* Interactive Classroom professional development and is based on the work of Punya Mishra and Matthew J. Koehler from Michigan State University (Koehler & Mishra, 2008). TPACK attempts to capture some of the essential qualities of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multifaceted and situated nature of teacher knowledge. At the heart of the TPACK framework, is the complex interplay of three primary forms of knowledge: Content (CK), Pedagogy (PK), and Technology (TK).
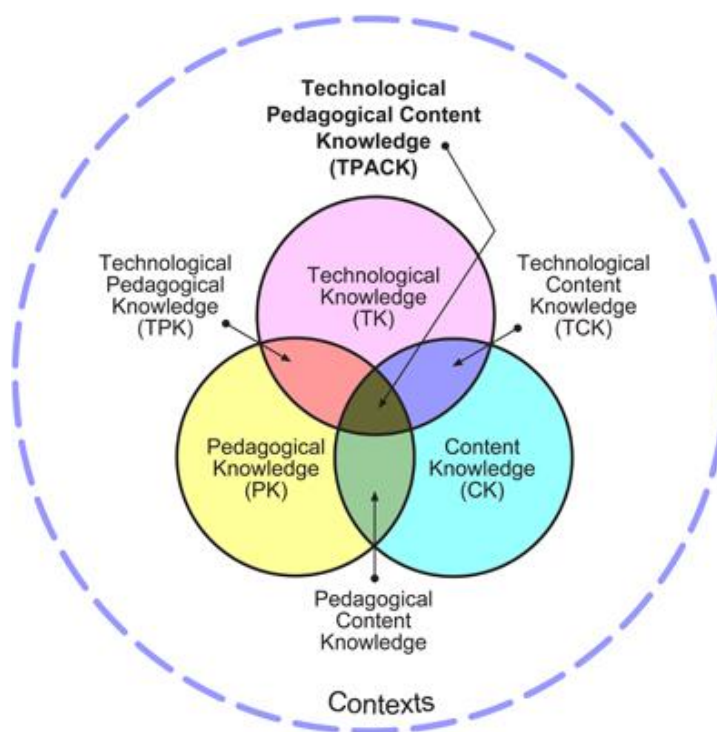
The TPACK approach goes beyond seeing these three knowledge bases in isolation. On the other hand, it emphasizes the new kinds of knowledge that lie at the intersections between them. Considering pedagogy and content together we get Pedagogical Content Knowledge (PCK), knowledge of pedagogy that is applicable to the teaching of specific content. Similarly, considering technology and content taken together, we get Technological Content Knowledge (TCK), the knowledge of the relationship between technology and content. At the intersection of technology and pedagogy, is Technological Pedagogical Knowledge (TPK), which emphasizes the existence, components and capabilities of various technologies as they are used in the settings of teaching and learning.

The intersection of all three elements is Technological Pedagogical Content Knowledge (TPACK). True technology integration involves understanding and negotiating the relationships between these three components of knowledge. A teacher capable of negotiating these relationships represents a form of expertise different from and greater than the knowledge of a disciplinary expert (say a mathematician or a historian), a technology expert (a computer scientist) and a pedagogical expert (an experienced educator). Effective technology integration for pedagogy around specific subject matter requires developing sensitivity to the dynamic, transactional relationship between all three components.

As we develop 21st century learning environments coupled with highly qualified teachers, we must also provide our students multiple ways to learn knowledge and skills.

Universal Design for Learning (UDL) principles assist educators to customize their teaching for individual differences in each of the following three brain networks (CAST, 2009):
1. **Multiple means of representation** to give learners various ways of acquiring information and knowledge.
2. **Multiple means of expression** to provide learners alternatives for demonstrating what they know.
3. **Multiple means of engagement** to tap into learners' interests, challenge them appropriately, and motivate them to learn.

The essential tools of the *i21* classroom include the pairing of Interactive White Board (IWB) technology with student computers (Netbooks) to increase the ability to teach and to optimize student access and engagement. These tools allow the teacher to configure the learning environment according to the context of the student-centric work at hand to meet state standards and learn 21st Century skills as thinkers, creators, designers and builders (Marzano, 2009).

SDUSD's successful Enhancing Science Education Through Technology (E^{S}ETT) Initiative is a research-based program for students. Initially pilot tested at two district middle schools in the 2004-05 academic year, the E^{S}ETT Initiative was then expanded with the support of EETT competitive grants to another twenty-six district middle schools that serve low-income and diverse students. Over a two-year period, teachers participating in the E^{S}ETT program demonstrated much greater increases in computer knowledge and skills than did all middle school teachers (a 22.4 percentage point gain vs. a 9.7 point gain). While all middle school teachers reported a 48.7% increase in using technology in the classroom (Standard 9) over the two years, E^{S}ETT teachers reported an 82.3% increase. E^{S}ETT teachers also reported a 73.5% increase in using technology to support student learning (Standard 16), compared to a 42.5% increase for all middle school teachers. In addition, E^{S}ETT students overall demonstrated a much faster rate of growth in their gains in proficiency in science than did students across the district. Across the district, 69.5% more students scored proficient or advanced in science in 2008 than in 2006. At E^{S}ETT schools (which started at a lower level of proficiency than average), the average growth rate was 167.6%.

When the Educational Technology Strategic Plan has been fully implemented, the district will be positioned to offer new technology supports for the delivery of rigorous academic courses and curricula. The ETSP includes the Integrated 21st Century (i21) Interactive Classroom Initiative as a primary strategy, which when completed, will provide learning environments in 7000+ district classrooms that will extend student learning beyond the four walls of the classroom. Through a district upgraded 10 GB backbone and expanded broadband capacity (100-500 MB) at school sites, curriculum, tools and resources will be available 24/7 anyplace anywhere. The expanded bandwidth capacity will provide access to other networks and systems providing rich content resources for teaching and learning on student computers (Netbooks). The Local Area Network infrastructure will provide access to the Digital California Project K-12 Statewide Network, will allow students and teachers to access content on the Internet and World Wide Web, and will allow distance learning to occur both internally within district classrooms and externally from remote locations.

On September 29, 2008, the SDUSD Board of Education approved the establishment of a virtual high school as an online diploma program in 2008-09 as part of a three year road map to provide students access to standard-based online learning courses and resources that support them in attaining their educational goals.

K-12 online learning and virtual schools are expanding rapidly. The market for K-12 online learning is estimated to be growing by 30% annually. There are 26 statewide or state-led virtual schools in the United States, and 42 states have significant supplemental online learning programs, significant full-time programs in which students take most or all of their courses online, or both. More than half (57%) of public secondary schools in the United States provide student access to online learning, and 72% of school districts with online learning plan to expand online offerings in the coming year (NCES, 2005). As of January 2007 there were 173 virtual charter schools serving 92,235 students in 18 states (NACOL, 2008). Total enrollment in K-12 online learning programs in 2007 is estimated to top one million students (NACOL, 2008). Data suggest that in about six years 10 percent of all courses will be computer-based, and by 2019 about 50 percent of courses will be delivered online (Christensen, Horn & Johnson, 2008).

The virtual school program represents another district strategy to reduce student dropout rates as well as benefit students and the district in the following ways:

- It expands educational opportunities for students by allowing them to continue their studies outside the traditional classroom. This can benefit at-risk students, dropouts, migrant students, young adults or pregnant, students from foster programs, and students who are homebound due to illness or injury.

- It enables students to take advanced placement, honors, or other advanced courses that are not available in their school due to lack of resources or qualified teachers.

- It offers more flexible alternative programs to meet the needs of more students and their families.

- It offers the potential to recapture ADA by attracting students who otherwise might attend a charter or non-district school.

- It addresses the needs of "millennial" students who have grown up with technology and use high-tech tools in their daily lives. Their use of technology often outpaces the more traditional modes of education offered in most classrooms, and threatens to make them ever more disconnected from their own education.

References

Aber, R. (2004). To be or not to be an early adopter. *IQ Magazine*, Second Quarter 2004. Available at www.cisco.com/en/US/about/ac123/iqmagazine/archives/q2_2004.html

Becker, H.J. & Riel, M.M. (2002). Teacher professional engagement and constructive-compatible computer usage (Report No 7) [Online]. Irvine, CA: Teaching, Learning and Computing. Available: www. Crito.uci.edu/tlc/findings/report_7/.

CAST (2009). What is universal design for learning? Download at www.cast.org/research/udl)

Cavanaugh, C., Gillan, K., Kromrey, J., Hess, M., & Blomeyer, R. (2004). *The effects of distance education on K-12 student outcomes: A meta-analysis*. North Central Regional Education Laboratory. Download from www.ncrel.org/tech/distance/index.html.

Christensen, C.M., Horn, M.B. & Johnson, G.W. (2008). *Disrupting Class: How Disruptive Innovation will Change the Way the World Learns*. New York: McGraw Hill.

Coley, R. (1997). *Technology's impact*. Online Electronic School. http://electronic-school.com/0997f3.html.

Coley, R.J., Cradler, J. & Engel, P.K. (1997). Computers and classrooms: The status of technology in U.S. schools. Princeton, NJ: Educational Testing Service Policy Information Center.

Corcoran, T.B. (1995). *Helping teachers teach well: Transforming professional development* (CPRE Policy Brief). Download at www.ed.gov/pubs/CPRE/t61/.

Cradler, J.D. (2002). The technology insertion program. In K.D. Forbus & P.J. Feltovich (Eds). *Smart machines in education* (pp. 400-401). Menlo Park, CA: AAA1/MIT Press.

Cradler, J. & Cradler, R. (2000). *The curriculum technology integration plan (CTIP): Impact of the CTIP on technology integration in the DiEA DoD presidential technology initiative*. San Mateo, CA: Educational Support Systems.

Cradler, J. & Cradler, R. (2002). Effective Integration: Research-Based Decision Making for Technology Planning and Integration. International Society for Technology in Education. *Learning & Leading with Technology* (30:4).

Cradler, J., McNabb, M., Freeman, M. & Burchett, R. (2002). How Does Technology Influence Student Learning? International Society for Technology in Education. *Learning & Leading with Technology* (29:8).

Elmore, R.F. (2000). *Building a New Structure for School Leadership*. Washington, D.C.: Albert Shanker Institute.

Elmore, R.F. (2002). *Bridging the Gap between Standards and Achievement; The Imperative for Professional Development in Education*. Washington, D.C.: Albert Shanker Institute.

Fullan, M. (1991) *The New Meaning of Educational Change* (2nd Ed.). New York, NY: Teachers College Press.

Fullan, M. (1993) The limits and potential of professional development. In T. Guskey & M. Huberman (Eds.), *Professional development in education: New paradigms and practices*. New York: Teachers College Press.

Gahala, J. (2001). *Critical Issue: Promoting Technology Use in Schools*. Downloaded at www.ncrel.org/sdrs/areas/issues/methods/technlgy/te200.htm.

Glenn, A.D. (1997). Technology and the continuing education of classroom teachers. *Peabody Journal of Education*, (7)1, 122-128.

Glennan, T.K. and Melmed. A. (1996). *Fostering the Use of Educational Technology: Elements of a National Strategy*. Santa Monica, CA: RAND.
http://rand.org/publications/MR/MR682/contents.html.

Idaho Council for Technology in Learning (1999). *The Idaho technology initiative: An accountability report to the Idaho Legislature on the effects of monies spent through the Idaho Council for Technology in Learning*. State Division of Vocational Education, The State Department of Education, Bureau of Technology Services.

Ike, C.A. (1997). Development though educational technology: Implications for teacher personality and peer collaboration. *Journal of Instructional Psychology*, *24*, 42-49.

ISTE, National Education Technology Standards, Teachers, Students and Administrators, http://www.iste.org/AM/Template.cfm?Section=NETS.

Kay, K. (2009). Middle schools preparing young people for 21st century life and work. *Middle School Journal*, 40(5), p. 40-45.

Kelley, L. & Ringstaff, C (2002). The learning return on our educational technology investment: A review of findings from research. San Francisco: WestEd. Available:
 www.WedtEd.org/online_pubs/learning_return.pdf

Kimble, C. (1999). Policy Brief: *The Impact of Technology on Learning: Making Sense of the Research*. Aurora, CO: Mid-continent Research for Education and Learning.

Koedinger, K., Anderson, L., Hadley, W. & Mark, M. (1997). *Intelligent Tutoring Goes to School in the Big City*. Pittsburgh, PA: Human-Computer Interaction Institute, Carnegie Mellon University.

Koehler, M. J., & Mishra, P. (2008). Introducing TPACK. In AACTE Committee on Innovation & Technology (Eds.). *Handbook of technological pedagogical content knowledge for educators* (pp. 3-29). New York, NY: Routledge.

Kulik, J.A. & Kulik, C. (1987). "Computer-based instruction: What 200 evaluations say." Paper Presented at the Annual Convention of the Association for Educational Communications and Technology, Atlanta, GA. (ERIC Document Reproduction Service No. ED 285 521).

Levin, D. & Arafeh, S. (2002). *The Digital Disconnect: The Widening Gap Between Internet-Savvy Students and Their Schools*. Washington, D.C.: The Pew Internet & American Life Project.

Marzano, Robert . "Evaluation Study of the Effects of Promethean ActivClassroom on Student Achievement." Marzano Research Laboratory. March 2009. Download at www.marzanoresearch.com/documents/Preliminary%20Report%20on%20ActivClassroom.pdf.

McKenzie, J. (1994). From technology refusal to technology acceptance: A reprise. *From Now On*, *4*(9). Downloaded at www.fno.org/may94fno.html.

Miller, M.N. (1998). The technology float in education today. *Science Activities*, *35*(2), 3-4.

Moore, G.A. (1991). *Crossing the Chasm*. New York: HarperBusiness.

NACOL (2008). *Fast Facts about Online Learning*. North American Council for Online Learning, www.nacol.org.

National Center for Education Statistics (NCES), (2002). *Technology in Schools: Suggestions, Tools, and Guidelines for Assessing Technology in Elementary and Secondary Education*. U.S. Department of Education, Office of Educational Research and Improvement (NCES 2003-313).

NCES (2005). *Distance Education in Elementary and Secondary Public School Districts*. U.S. Department of Education, National Center for Educational Statistics. www.nces.ed.gov.

NetDay. (2004). "Insights and Ideas of Teachers of Technology: National Report on Netday Speak Up Day for Teachers." Downloaded from
 www.netday.org/sud4teachers_2004_report.htm.

North Central Regional Educational Laboratory (NCREL) (2003). *EnGuage 21st Century Skills for 21st Century Learners*. www.ncrel.org/enguage.

Norton, P. & Gonzales, C. (1998). Regional educational technology assistance initiative. Phase II: Evaluation a model for statewide professional development. *Journal of Research on Computing in Education*, *31*(1), 25-48.

Partnership for 21st Century Skills. (2002). *Learning for the 21st Century*. Available at www.21stcenturyskills.org.

Partnership for 21st Century Skills. (2004). *Learning for the 21st Century*. Available at www.21stcenturyskills.org.

Partnership for 21st Century Skills. (2009). *21st Century Learning Environments*. Available at www.21stcenturyskills.org.

Penuel, B., Golan, S. Means, B., and Korbak, C. (2000). *Silicon Valley Challenge 2000*: Year 4 report. Menlo Park, CA: SRI International.

Poole, J.J. & Moran, C. (1998). Schools have their computers, now what? T.H.E. Journal [Online]. Downloaded at www.thejournal.com/magazine/vault.A2008cfm.

Prouty, D. (2004). A tool to help teachers add technology. *OnCUE*, Winter 2004, p. 16. Downloaded from www.cue.org.

Rasher, S.P., Abromitis, B.S., & Johnson, E.M. (2004). "Case Studies of High-Performing, High-Technology Schools: Final research report on schools with predominately low-income, African-American, or Latino student populations." North Central Regional Educational Laboratory. Downloaded from www.ncrel.org/tech/hpht.pdf.

Reksten, L.E. (2000). *Using Technology to Increase Student Learning*. Thousand Oaks, CA: Corwin Press.

Rogers, E.M. (2003). *Diffusion of Innovations* (5th ed). New York: Simon & Schuster.

Sandholtz, J.H., Ringstaff, C. & Dwyer, D.C. (1997). *Teaching with technology: Creating student-centered classrooms*. New York: Teachers College Press.

Saye, J.W. (1998). Technology in the classroom: The role of dispositions in teacher gatekeeping. *Journal of Curriculum and Supervision, 13*(3), 210-234.

Schacter (1999). The impact of education technology on student achievement: What the most current research has to say. Retrieved from the Milken Family Foundation Website: www.mff.org/pubs.ME161.pdf.

Schlechty, P. (1997). *Inventing Better Schools: An Action Plan for Education Reform*. Jossey-Bass Education Series.

Setzer, J.C. & Lewis, L. (2010). Distance Education Courses for Public Elementary and Secondary School Students: 2002-03 (NCES 2010-010). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Sidener, J. (2004). County's digital divide is narrowing. *San Diego Union Tribune*, October 21, 2004.

Silverstein, G., Frechtling, J. & Miyoaka, A. (2000). *Evaluation of the use of technology in Illinois Public Schools: Final Report*. Rockville, MD: Westat, prepared for Research Division, Illinois State Board of Education.

Sivin-Kachala, J. & Bialo, E. (2000). *2000 Research Report on the Effectiveness of Technology in Schools (7th ed)*. Washington, D.C.: Software and Information Industry Association.

Strudler, N. (1994). "The role of school-based technology coordinators as change agents in elementary school programs: A follow-up study." Presented at AERA, New Orleans, LA, April 5, 1994.

Tenbusch, J.P. (1998). Teaching the teachers: Technology staff development that works. *Electronic School* [Online]. Downloaded at www.electronic-school.com/0398fl.html.

U.S. Department of Education. (2001). Exemplary and promising educational technology programs 2000. Available:www.ed.gov/offices/OERI/ORAD/LTD/newtech_progs.html.

U.S. Department of Education (2004). National Education Technology Plan. Available at www.NationalEdTechPlan.org.

Valdez, G., McNabb, M., Foerstch, M., Anderson, M,. Hawkes, M. & Raack, L. (1999). *Computer-based technology and learning: Evolving uses and expectations*. Oak Brook, IL: North Central Regional Educational Laboratory.

Waxman, H. Lin, M. & Michko, G. (2003). *A meta-analysis of the effectiveness of teaching and learning with technology on student outcomes*. Northwest Central Regional Educational Laboratory. Download from www.ncrel.org/tech/effects2/index.html.

Wenglinsky, H. (1998) *Does it compute? The relationship between educational technology and students achievement in mathematics*. Educational Testing Services Policy Information Center.

Wetzel, K. (2002). *Computers in the writing process*. Eugene, OR: International Society for Technology in Education.

Wetzel, K. Zambo, R., Bussm R.R., & Padgett, H. (2001, June). Staff development ideas from the Arizona Classrooms of Tomorrow Today program. Presentation at the National Educational Computing Conference, Chicago, IL.

Yocam, K. (1996). Conversation: An essential element of teacher development. In C. Fisher, D.C. Dwyer, & K. Yokam (Eds), *Education and technology*. San Francisco: Jossey-Bass.

Zhao, Y., Pugh, K., Sheldon, S., & Byers, J.L. (2002). Conditions for classroom technology innovations. *Teachers College Record*, 104(3), 482-515.

E-RATE SUPPLEMENT

Financial Resources

The San Diego Unified School District will be able to secure the financial resources needed to achieve the educational technology goals outlined in this Educational Technology Strategic Plan, including professional development and training, software, and other related items that might not be eligible for E-Rate discounts.

SDUSD will utilize funding from a variety of sources to achieve its educational technology goals, including:

- General Fund, unrestricted state and local funding, used to cover the majority of the district's ongoing operations.

- Categorical funds, state and federal funds that are restricted in their use to specific purposes and programs, including educational technology funded under the No Child Left Behind Act

- Proposition S bond funds, passed by the voters in the City of San Diego in 2008, which provides funding for technology upgrades for the district's elementary schools and high schools

- Grant funds and donations of equipment and services from companies and organizations. SDUSD maintains a grants office that keep close watch on potential funding opportunities and that works with district staff to guide their development of competitive grant proposals. Educational Technology Department staff members have submitted a competitive ARRA EETT program proposal to help fund the implementation of this plan, particularly the professional development that is not funded through E-Rate.

In addition to the E-Rate program, SDUSD participates in a number of programs to reduce its costs for telecommunications and computers. These programs include:

- *CALNET Contract*. SDUSD participates in statewide contracts competitively bid and negotiated by the California Department of Governmental Services, which results in savings on telecommunications charges.

- *The California Teleconnect Fund*, operated by the California Public Utilities Commission, and which provides 50% discounts of most ongoing costs for telecommunications services provided by common carriers.

- *Western States Contracting Alliance*, cooperative multi-state contracting developed on behalf of public entities by the state purchasing directors from 15 western states, and which provides competitive prices on computers and peripheral products.

- The *California Multiple Awards Schedule* (CMAS), which provides contract terms and negotiated discounts on equipment and services through the California Department of Governmental Services.

- The *K12 Educational Technology Voucher Program* funds are available as a result of a settlement agreement in an antitrust case against Microsoft Corporation. Per the settlement agreement, a fund was established to offer vouchers to public schools that can be used to purchase computer hardware, software, or professional development.

Services and Products for Which E-Rate Funds are Being Requested

Telecommunications Services

The telecommunications network including phone and data circuits is the basis of the communication system, which is essential to achieving the goals that are mentioned above. The Schools and Library Division of the Federal Communications Commission has ruled that all telecommunication "…activities that are integral, immediate, and proximate to the education of students or the provision of library services to patrons" are eligible for E-rate discount. The funding for these services is paid from the General Fund, therefore the match will be paid from General Funds. The district discount is approximately 70%. These Telecommunications services include:

- Basic phone (POTS) and services listed below which support or supplement these services
  - alarm and elevator lines throughout the district
  - centrex lines
  - conferencing services
  - custom calling services
  - direct inward dialing
  - directory assistance services
  - FAX machine lines
  - homework hotline services
  - wire maintenance
  - local measured service
  - lease charges for trunk or transport lines

- Long Distance Service
  - PIC Change Charge

- Cell Service

- Paging Service

- ATM circuits

- DSL services

- Frame relay services

- Distance learning circuits

- Permanent virtual circuit (PVC's)

- WAN Services

Internet Access

Internet access charges are required and are paid out of the General Fund. The district discount is approximately 70% for these services. Internet Access Services required to achieve the goals of the Educational Technology Strategic Plan include:
- digital subscriber lines
- domain name registration
- email services
- email account fees
- firewall services
- GSP services
- web hosting
- wireless internet access

Internal Connections

Internal Connections are required to build the infrastructure for movement of data throughout the district. These services have a shared discount of 70% with individual school discounts higher or lower depending upon the Free/Reduced lunch counts at each school. The match for these services is approximately 10% to 30%, and is covered from a variety of funding sources including grant funds (EETT, private foundation grants etc). Proposition S bond funds also provide the match for many of these infrastructure projects.

Internal Connections required to achieve the goals of the Educational Technology Strategic Plan include:
- wireless access points
- antenna
- attendant consoles for PBX/Centrex
- active hardware cabinets
- internal wiring including conduit and raceway
- caching components
- CSU/DSU

- client access licenses
- CODEC/Video Encoder
- documentation
- edge devices
- Terminal Servers, Web servers, file servers used exclusively for Email and potentially remote access servers that are conditionally eligible.
- firewall hardware and software
- FRAD
- graphics cards for eligible servers
- hard disk drive
- hub
- LAN's
- maintenance and technical support
- media converter
- RAM as a component of an eligible product
- monitors for eligible servers
- network interface cards
- network switches
- PBX both wired and wireless
- processor terminator card for an eligible server
- racks
- RAID
- relay I/O module
- routers
- software
- system improvements and upgrades
- tape backup as part of an eligible server
- transceiver
- UPS and batteries
- video Equipment
- VOIP equipment

Miscellaneous

Miscellaneous items include services and hardware essential to achieve the goals of the Educational Technology Strategic Plan. The match for these items is similar to the Internal Connection match funding and is provided through the same funding sources. Miscellaneous items include:

- configuration charges
- extended warranty charges
- taxes, surcharges and other similar charges
- technical services
- voice mail services including hardware

APPENDIX C – CRITERIA FOR EETT TECHNOLOGY PLANS

1. PLAN DURATION CRITERION		Example of Adequately Addressed	Example of Not Adequately Addressed
The plan should guide the district's use of education technology for the next three to five years. (For a new plan, can include technology plan development in the first year)		The technology plan describes the LEA use of education technology for the next three to five years. (For new plan, description of technology plan development in the first year is acceptable). The plan must include a specific start and end date (7/1/10 to 6/30/15).	The plan is less than three years or more than five years in length.
2. STAKEHOLDERS CRITERION Corresponding EETT Requirement(s): 7 and 11 (Appendix D).			
Description of how a variety of stakeholders from within the school district and the community-at-large participated in the planning process.		The planning team consisted of representatives who will implement the plan. If a variety of stakeholders did not assist with the development of the plan, a description of why they were not involved is included.	Little evidence is included that shows the district actively sought participation from a variety of stakeholders.
3. CURRICULUM COMPONENT CRITERIA Corresponding EETT Requirement(s): 1, 2, 3, 8, 10, and 12 (Appendix D).			
a. Description of teachers' and students' current access to technology tools both during the school day and outside of school hours.		The plan describes the technology access available in the classrooms, library/media centers, or labs for all students and teachers.	The plan explains technology access in terms of a student-to-computer ratio, but does not explain where access is

			available, who has access, and when various students and teachers can use the technology.
b. Description of the district's current use of hardware and software to support teaching and learning.		The plan describes the typical frequency and type of use (technology skills/information and literacy integrated into the curriculum).	The plan cites district policy regarding use of technology, but provides no information about its actual use.
c. Summary of the district's curricular goals that are supported by this tech plan.		The plan summarizes the district's curricular goals that are supported by the plan and referenced in district document(s).	The plan does not summarize district curricular goals.
d. List of clear goals, measurable objectives, annual benchmarks, and an implementation plan for using technology to improve teaching and learning by supporting the district curricular goals.		The plan delineates clear goals, measurable objectives, annual benchmarks, and a clear implementation plan for using technology to support the district's curriculum goals and academic content standards to improve learning.	The plan suggests how technology will be used, but is not specific enough to know what action needs to be taken to accomplish the goals.
e. List of clear goals, measurable objectives, annual benchmarks, and an implementation plan detailing how and when students will acquire the technology skills and information literacy skills needed to succeed in the classroom and the workplace.		The plan delineates clear goals, measurable objectives, annual benchmarks, and an implementation plan detailing how and when students will acquire technology skills and information literacy skills.	The plan suggests how students will acquire technology skills, but is not specific enough to determine what action needs to be taken to accomplish the goals.

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f.	List of goals and an implementation plan that describe how the district will address the appropriate and ethical use of information technology in the classroom so that students and teachers can distinguish lawful from unlawful uses of copyrighted works, including the following topics: the concept and purpose of both copyright and fair use; distinguishing lawful from unlawful downloading and peer-to-peer file sharing; and avoiding plagiarism	The plan describes or delineates clear goals outlining how students and teachers will learn about the concept, purpose, and significance of the ethical use of information technology including copyright, fair use, plagiarism and the implications of illegal file sharing and/or downloading.	The plan suggests that students and teachers will be educated in the ethical use of the Internet, but is not specific enough to determine what actions will be taken to accomplish the goals.
g.	List of goals and an implementation plan that describe how the district will address Internet safety, including how students and teachers will be trained to protect online privacy and avoid online predators.	The plan describes or delineates clear goals outlining how students and teachers will be educated about Internet safety.	The plan suggests Internet safety education but is not specific enough to determine what actions will be taken to accomplish the goals of educating students and teachers about Internet safety.
h.	Description of or goals about the district policy or practices that ensure equitable technology access for all students.	The plan describes the policy or delineates clear goals and measurable objectives about the policy or practices that ensure equitable technology access for all students. The policy or practices clearly support accomplishing the plan's goals.	The plan does not describe policies or goals that result in equitable technology access for all students. Suggests how technology will be used, but is not specific enough to know what action needs to be taken to accomplish the goals.
i.	List of clear goals, measurable objectives, annual benchmarks, and an implementation plan to use technology	The plan delineates clear goals, measurable objectives, annual benchmarks, and an implementation plan for	The plan suggests how technology will be used, but is not specific enough to know what action needs to be taken to

	to make student record keeping and assessment more efficient and supportive of teachers' efforts to meet individual student academic needs.		using technology to support the district's student record-keeping and assessment efforts.	accomplish the goals.
j.	List of clear goals, measurable objectives, annual benchmarks, and an implementation plan to use technology to improve two-way communication between home and school.		The plan delineates clear goals, measurable objectives, annual benchmarks, and an implementation plan for using technology to improve two-way communication between home and school.	The plan suggests how technology will be used, but is not specific enough to know what action needs to be taken to accomplish the goals.
k.	Describe the process that will be used to monitor the Curricular Component (Section 3d-3j) goals, objectives, benchmarks, and planned implementation activities including roles and responsibilities.		The monitoring process, roles, and responsibilities are described in sufficient detail.	The monitoring process either is absent, or lacks detail regarding procedures, roles, and responsibilities.
4.	**PROFESSIONAL DEVELOPMENT COMPONENT CRITERIA** Corresponding EETT Requirement(s): 5 and 12 (Appendix D).			
a.	Summary of the teachers' and administrators' current technology proficiency and integration skills and needs for professional development.		The plan provides a clear summary of the teachers' and administrators' current technology proficiency and integration skills and needs for professional development. The findings are summarized in the plan by discrete skills that include Commission on Teacher Credentialing (CTC) Standard 9 and 16	Description of current level of staff expertise is too general or relates only to a limited segment of the district's teachers and administrators in the focus areas or does not relate to the focus areas, i.e., only the fourth grade teachers when grades four to eight are the focus grade levels.

		proficiencies.	
b. List of clear goals, measurable objectives, annual benchmarks, and an implementation plan for providing professional development opportunities based on your district needs assessment data (4a) and the Curriculum Component objectives (Sections 3d - 3j) of the plan.		The plan delineates clear goals, measurable objectives, annual benchmarks, and an implementation plan for providing teachers and administrators with sustained, ongoing professional development necessary to reach the Curriculum Component objectives (sections 3d - 3j) of the plan.	The plan speaks only generally of professional development and is not specific enough to ensure that teachers and administrators will have the necessary training to implement the Curriculum Component.
c. Describe the process that will be used to monitor the Professional Development (Section 4b) goals, objectives, benchmarks, and planned implementation activities including roles and responsibilities.		The monitoring process, roles, and responsibilities are described in sufficient detail.	The monitoring process either is absent, or lacks detail regarding who is responsible and what is expected.
5. INFRASTRUCTURE, HARDWARE, TECHNICAL SUPPORT, AND SOFTWARE COMPONENT CRITERIA Corresponding EETT Requirement(s): 6 and 12 (Appendix D).			
a. Describe the existing hardware, Internet access, electronic learning resources, and technical support already in the district that will be used to support the Curriculum and Professional Development			The inventory of equipment is so general that it is difficult to determine what must be acquired to implement the Curriculum and Professional Development Components. The summary of current technical support is

Components (Sections 3 & 4) of the plan.			missing or lacks sufficient detail.
b. **Describe the technology hardware, electronic learning resources, networking and telecommunications infrastructure, physical plant modifications, and technical support needed by the district's teachers, students, and administrators to support the activities in the Curriculum and Professional Development components of the plan.**			The plan includes a description or list of hardware, infrastructure, and other technology necessary to implement the plan, but there doesn't seem to be any real relationship between the activities in the Curriculum and Professional Development Components and the listed equipment. Future technical support needs have not been addressed or do not relate to the needs of the Curriculum and Professional Development Components.
c. **List of clear annual benchmarks and a timeline for obtaining the hardware, infrastructure, learning resources and technical support required to support the other plan components identified in Section 5b.**			The annual benchmarks and timeline are either absent or so vague that it would be difficult to determine what needs to be acquired or repurposed, by whom, and when.
d. **Describe the process that will be used to monitor Section 5b & the annual benchmarks and timeline of activities including roles and responsibilities.**			The monitoring process either is absent, or lacks detail regarding who is responsible and what is expected.
6. **FUNDING AND BUDGET COMPONENT CRITERIA** Corresponding EETT Requirement(s): 7 & 13,			

(Appendix D)			
a. **List established and potential funding sources.**			Resources to implement the plan are not clearly identified or are so general as to be useless.
b. **Estimate annual implementation costs for the term of the plan.**			Cost estimates are unrealistic, lacking, or are not sufficiently detailed to determine if the total cost of ownership is addressed.
c. **Describe the district's replacement policy for obsolete equipment.**			Replacement policy is either missing or vague. It is not clear that the replacement policy could be implemented.
d. **Describe the process that will be used to monitor Ed Tech funding, implementation costs and new funding opportunities and to adjust budgets as necessary.**			The monitoring process either is absent, or lacks detail regarding who is responsible and what is expected.
7. **MONITORING AND EVALUATION COMPONENT CRITERIA** Corresponding EETT Requirement(s): 11 (Appendix D).			
a. **Describe the process for evaluating the plan's overall progress and impact on teaching and learning.**			No provision for an evaluation is included in the plan. How success is determined is not defined. The evaluation is defined, but the process to conduct the evaluation is missing.
b. **Schedule for evaluating the effect of plan implementation.**			The evaluation timeline is not included or indicates an expectation of unrealistic results that does not support the continued implementation of the plan.
c. **Describe the process**			The plan does not provide

and frequency of communicating evaluation results to tech plan stakeholders.			a process for using the monitoring and evaluation results to improve the plan and/or disseminate the findings.
8. **EFFECTIVE COLLABORATIVE STRATEGIES WITH ADULT LITERACY PROVIDERS TO MAXIMIZE THE USE OF TECHNOLOGY CRITERION** Corresponding EETT Requirement(s): 11 (Appendix D).			
a. **If the district has identified adult literacy providers, describe how the program will be developed in collaboration with them. (If no adult literacy providers are indicated, describe the process used to identify adult literacy providers or potential future outreach efforts.)**		The plan explains how the program will be developed in collaboration with adult literacy providers. Planning included or will include consideration of collaborative strategies and other funding resources to maximize the use of technology. If no adult literacy providers are indicated, the plan describes the process used to identify adult literacy providers or potential future outreach efforts.	There is no evidence that the plan has been, or will be developed in collaboration with adult literacy service providers, to maximize the use of technology.
9. **EFFECTIVE, RESEARCHED-BASED METHODS, STRATEGIES, AND CRITERIA** Corresponding EETT Requirement(s): 4 and 9 (Appendix D).			
a. **Summarize the relevant research and describe how it supports the plan's curricular and professional development goals.**		The plan describes the relevant research behind the plan's design for strategies and/or methods selected.	The description of the research behind the plan's design for strategies and/or methods selected is unclear or missing.

b. Describe the district's plans to use technology to extend or supplement the district's curriculum with rigorous academic courses and curricula, including distance-learning technologies.		The plan describes the process the district will use to extend or supplement the district's curriculum with rigorous academic courses and curricula, including distance learning opportunities (particularly in areas that would not otherwise have access to such courses or curricula due to geographical distances or insufficient resources).	There is no plan to use technology to extend or supplement the district's curriculum offerings.
References			
E-RATE Supplement			
Appendix C: Criteria for EETT Technology Plans			
Appendix J: Technology Plan Contact Information			

APPENDIX J – TECHNOLOGY PLAN CONTACT INFORMATION

Education Technology Plan Review System (ETPRS)
Contact Information

County & District Code: <u>37</u> - <u>68338</u>

School Code (Direct-funded charters only): _ _ _ _ _ _ _

LEA Name: <u>San Diego Unified School District</u>

*Salutation: Mr.

*First Name: <u>Darryl</u>

*Last Name:<u>LaGace</u>

*Job Title: <u>Chief Information and Technology Officer</u>

*Address: <u>4100 Normal Street, Room 1110</u>

*City: <u>San Diego</u>

*Zip Code:<u>92103-2682</u>

*Telephone: <u>619) 260-5473</u> Ext

Fax: <u>(619) 725-7497</u>

*E-mail: <u>dlagace@sandi.net</u>

Please provide backup contact information.

1st Backup Name: <u>Barbara Allen</u>

1st Backup E-mail: <u>barbara.allen@sandi.net</u>

2nd Backup Name: <u>Toren Allen</u>

2nd Backup E-mail: <u>tallen@sandi.net</u>

*Required information in the ETPRS

General Software		A	- Awareness Level
		G	- Guided Level
		I	- Independent Level
		M	- Mastered
		O	- Optional

Standards and Core Competencies

NETS Student Standards:

1. Basic Operations and Concepts

   - Students demonstrate a sound understanding of the nature and operation of technology systems.
   - Students are proficient in the use of technology.

6. Technology Problem-Solving and Decision-Making Tools

   - Students use technology resources for solving problems and making informed decisions.
   - Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

1. Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use.

9. Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8	9	10	11	12
A	Start up and quit applications.	G	I	M										
B	Create a new document; save, open, close a document; print a document.	G	G	G	I	I	M							
C	Use "Save As" appropriately.	A	A	G	G	I	M							
D	Choose appropriate page orientation.	A	A	G	I	I	M							
E	Save and retrieve documents from hard drive, external disks, serers and web based digital storage (understand desktop navigation/hierarchy).	A	G	G	I	I	M							
F	Copy or cut and paste text and/or pictures from one program to another.	A	G	G	I	I	M							
G	Use help menu as a method for problem solving.	A	A	G	G	I	M							
H	Import and export a document.				A	G	G	I	I	M				
I	Choose appropriate software for the task.					A	G	G	I	M				

J	Install and configure software programs.	O	O	O	O	O	O	O	O	O	O	O	O	O
K	Set preferences on software programs.	O	O	O	O	O	O	O	O	O	O	O	O	O

Operating System	**A** - Aw **G** - Gu **I** - In **M** - Ma **O** - Op

Standards and Core Competencies

Standards:

1.   Basic Operations and Concepts

- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology.

6.   Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

1.   Apply strategies for identifying and solving routine hardware and software problems that occur during everyday us
9.   Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applica

	Knowledge and Skills	K	1	2	
A	Start, shut down, restart.	G	I	M	
B	Insert and remove disks correctly (CD-ROM's and DVD's).	A	G	I	
C	Use help menu as a method for problem solving.	A	A	G	
D	Printer: add, remove, and select the appropriate.	A	A	G	
E	Understand the desktop, window manipulation (minimize window, close window, maximize window), finder/program manager, application/finder menu, and dock/short cut bar.	A	G	G	
F	Use file management including delete, copy, paste, backup, format/initialize external hard drive/flash drive, and cross-platform file transfer.			A	
G	Troubleshoot OS including quitting stalled programs.				
H	Install appropriate software drivers for interenal and external hardware or equipment.				
I	Initialize and partition hard drives.				

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J	Install operating system software.			
K	Set system preferences.			

Operating System	**A** - Awareness Level **G** - Guided Level **I** - Independent Level **M** - Mastered **O** - Optional

Standards and Core Competencies

Standards:

1. Basic Operations and Concepts

- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology.

6. Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

1. Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use.

9. Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8	9	10	11	12
A	Start, shut down, restart.	G	I	M										
B	Insert and remove disks correctly (CD-ROM's and DVD's).	A	G	I	M									
C	Use help menu as a method for problem solving.	A	A	G	G	I	M							
D	Printer: add, remove, and select the appropriate.	A	A	G	G	I	I	M						
E	Understand the desktop, window manipulation (minimize window, close window, maximize window), finder/program manager, application/finder menu, and dock/short cut bar.	A	G	G	I	I	I	M						
F	Use file management including delete, copy, paste, backup, format/initialize external hard drive/flash drive, and cross-platform file transfer.			A	G	G	G	I	I	M				

G	Troubleshoot OS including quitting stalled programs.				A	A	G	G	I	M				
H	Install appropriate software drivers for interenal and external hardware or equipment.					o	o	o	o	o	o	o	o	o
I	Initialize and partition hard drives.									O	o	o	o	
J	Install operating system software.									O	O	O	O	
K	Set system preferences.									O	O	O	O	

Word Processing	A	- Awareness Level
	G	- Guided Level
	I	- Independent Level
	M	- Mastered
	O	- Optional

Standards and Core Competencies

Standards:

3.   Technology Productivity Tools

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works.

6.   Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

5.   Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8	9	10	11	12
A	Enter text and line break (character keys, space bar and return/enter key).	I	M											
B	Delete text (delete key or backspace key).	I	M											
C	Insert and move cursor (arrow keys, mouse, optional touch screen).	G	I	M										
D	Use basic punctuation keys (shift, question mark, period and comma keys).	G	G	I	M									
E	Create numbered and bulleted list.	A	G	I	M									
F	Format and edit text by highlighting font, size, style; replace or delete existing text.	A	G	G	I	M								
G	Change justification and line spacing using basic ruler.	A	G	G	I	M								
H	Print document to include proper page orientation (portrait or landscape)	A	G	G	I	M								
I	Add hyperlinks	A	G	G	I	M								
J	Cut, copy and paste text to another location in		A	G	G	I	M							

			K	1	2	3	4	5	6	7	8	9	10	11	12
		same document.							■							
K	Use spelling check (words and entire document).				A	G	I	M							
L	Use help menu as a method for problem solving.		A	A	G	G	I	M							
M	Cut, copy and past text to and from another document.				A	G	G	I	M						
N	Import and arrange graphics in document (copy, paste, wrap text around graphic).					A	G	G	I	M					
O	Format document (margins, headers, footers, page numbering)					A	G	G	I	M					
P	Format paragraph and page (tab, indent, hanging indent, line spacing, outline format).					A	G	G	I	M					
Q	Create a multi-column document.					A	G	G	I	M					
R	Use find/replace, thesaurus, user/custom dictionaries.						A	G	I	M					
S	Import/export to other files, formats, documents or applications.						A	G	I	M					
T	Merge data from database or spreadsheet into word processing documents (e.g., form letter).						A	G	G	I	M				
U	Print only certain page numbers, multiple copies, and be able to select different desktop or network printers.						A	G	G	I	M				
V	Format tables (create, change row/column size, merge cells, repeat heading rows, format paragraphs inside cells, borders).						A	G	G	I	M				
W	Use document tracking to edit a document with multiple people.					A	G	G	I	I	I	M			
X	Use appropriate tools to make forms.							A	G	G	I	I	I	M
Y	Use autotext feature.							A	G	G	I	I	I	M
Z	Use the version save option when editing a document multiple times.							A	G	G	I	I	I	M
	Knowledge and Skills		K	1	2	3	4	5	6	7	8	9	10	11	12

Keyboarding			
A	**- Awareness Level**		
G	**- Guided Level**		
I	**- Independent Level**		
M	**- Mastered**		
O	**- Optional**		

Standards and Core Competencies

Standards:

3.   Technology Productivity Tools

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works.

6.   Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

5.   Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8	9	10	11	12
A	Recognize and locate letters and numbers on a keyboard.	I	M											
B	Use basic key functions (space bar, return/enter key, shift key, arrow keys, caps lock, delete/backspace, option/alt, tab key, F keys).	A	G	I	M									
C	Demonstrate correct home row position.	A	G	G	I	M								
D	Enter text at a defined speed with acceptable accuracy.	A	G	G	20 w/m	25 w/m	30 w/m							
E	Use correct right- and left-hand keyboard positions.	A	G	G	I	I	I	M						
F	Use key combinations on keyboard for menu shortcuts when using operating system and software applications.					O	O	O	O	O	O	O	O	O

	Graphics		A - Awareness Level G - Guided Level I - Independent Level M - Mastered O - Optional

Standards and Core Competencies

Standards:

3.   Technology Productivity Tools

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works.

6.   Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

5.   Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8	9	10	11	12
A	Use editing tools in drawing and painting (select, add color and pattern, resize, crop, erase).	A	A	G	G	I	M							
B	Use help menu as a method for problem solving.	A	A	G	G	I	M							
C	Capture still images from various digital sources (e. g., scanners, digital cameras, Internet).			A	G	I	I	M						
D	Use editing tools in drawing and painting (select, add color and pattern, resize, crop, erase).			A	G	G	G	I	M					
E	Use principles of design (proportion, balance, contrast, rhythm, emphasis, unity - see Appendix E, Design Principles and Tips).				A	G	G	G	I	M				
F	Import and export graphics in appropriate file format (e.g., eps, tiff, pict, jpeg, gif).					A	G	G	I	M				
G	Know appropriate type of graphics application to complete a given task (drawing, painting or photo enhancement).					A	G	G	I	M				

		1	2	3	4	5	6	7	8	9	10	11	12	13
H	Save graphic with attention to file size and media storage.				A	G	G	I	M					
I	Know the appropriate type of graphics application to complete a give task (drawing, painting, or photo enhancement)				A	G	G	I	M					
J	Plan, organize and save multimedia files with attention to file size and media storage.					A	A	A	G	G	I	I	I	M
K	Create original artwork using the tools within a grade-appropriate graphics program.	G	I	I	I	I	I	I	I	I	I	I	I	M
L	Create original 3-D graphics and animations.								O	O	O	O	O	O
M	Create original graphics using professional graphics applications.								O	O	O	O	O	O
N	Create original graphics with multiple layers.								O	O	O	O	O	O
O	Plan, organize and save multimedia files.								O	O	O	O	O	O

	Desktop Publishing	**A** **G** **I** **M** **O**	**- Awareness Level** **- Guided Level** **- Independent Leve** **- Mastered** **- Optional**

Standards and Core Competencies

Standards:

4.   Technology Communication Tools

- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other au
- Students use a variety of media and formats to communicate information and ideas effectively to multi

5.   Technology Research Tools

- Students use technology to locate, evaluate, and collect information from variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technology innovations based on the appro

6.   Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competenies:

6. Design, develop, publish, and present products (e.g., Web pages, videotapes using technology resources tha curriculum concepts to audiences inside and outside the classroom.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8
A	Choose justification or ragged right margin.		A	G	G	I	I	M		
B	Use appropriate fonts and styles in headlines (more latitude, fancier but readable).		A	G	G	I	I	M		
C	Use help menu as a method for problem solving			A	G	G	I	I	M	
D	Use appropriate fonts, style and size.			A	G	G	I	I	M	
E	Identify serif/sans serif fonts and use them appropriately.			A	G	G	I	I	M	
F	Avoid use of all caps in headlines.		A	A	G	G	I	I	M	
G	Set the column width.			A	A	G	G	I	I	M
H	Use age-appropriate software (e.g., ClarisWorks/Appleworks, PageMaker) for desktop publishing.	A	A	G	G	I	I	I	I	M

					K	1	2	3	4	5	6	7	8
I	Use principles of design (proportion, balance, contrast, rhythm, emphasis, unity - see						A	G	G	G	I	I	M
J	Balance the size, color and style of the headline relative to body text.						A	A	G	G	I	I	M
K	Balance the artwork in relation to text.					A	A	G	G	G	I	I	M
L	Apply shading and color where appropriate.						A	A	G	G	I	I	M
M	Set tabs and hanging indents.					A	A	G	G	G	I	I	M
N	Set the leading to control the white space between lines of text.												O	O
O	Use drop caps appropriately.												O	O
P	Utilize kerning for the headline.												O	O
	Knowledge and Skills				K	1	2	3	4	5	6	7	8	

Spreadsheet	**A** - Awareness Level **G** - Guided Level **I** - Independent Level **M** - Mastered **O** - Optional

Standards and Core Competencies

Standards:

3.   Technology Productivity Tools

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works.

6.   Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

5.   Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8	9	10	11	12
A	Read and interpret information in a spreadsheet.	A	G	G	I	I	M							
B	Enter, edit and delete information in a spreadsheet/graphing program.	A	G	G	I	I	M							
C	Use help menu as a method for problem solving.	A	G	G	I	I	M							
D	Set decimal place accuracy.			A	G	I	M							
E	Use basic formulas for adding, subtracting, multiplying, dividing, averaging (including median, mode), and determining percents.				A	G	I	I	I	M				
F	Format cell attributes (e.g., columns, rows, justification, styles, number).				A	G	G	I	I	I	M			
G	Use data from a spreadsheet to create charts and graphs (use of chart wizard).				A	G	G	I	I	I	M			
H	Use "fill" for multiple entries of the same value or number.					A	G	G	I	I	M			
I	Cut, copy and paste formulas, values and functions.					A	G	G	I	I	M			
J	Create multiple column data tables with column headers.					A	G	G	I	I	M			

K	Format document (margins, header, footer, page numbering).				A	G	G	I	I	M				
L	Print spreadsheet and/or chart with the ability to set print area.				A	G	G	I	I	M				
M	Link to multiple spreadsheets.							O	O	O	o	o	o	o
N	Conditional cell formatting (e.g., if <0, use red).							O	O	O	O	O	O	O

Networking	**A**	- Awareness Level	
	G	- Guided Level	
	I	- Independent Level	
	M	- Mastered	
	O	- Optional	

Standards and Core Competencies

Standards:

1.   Basic Operations and Concepts

- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology.

6.   Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

1.   Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use.

9.   Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and of practical applications to learning and problem solving.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8	9	10	11	12
A	Understand and agree to the district's Acceptable Use Policy and ethics.	G	G	G	G	G	G	G	G	G	G	G	G	G
B	Select networked printer.	A	A	A	G	G	I	M						
C	Select, log on/log off, open, close and save files to a pre-selected server.	A	A	G	G	I	i	M						
D	Explain the uses of and the means by which computers are networked.		A	A	A	A	G	G	I	M				
E	Troubleshoot cabling, network software, interface devices, connectivity (boxes, hubs).					O	O	O	O	O	O	O	O	O

Web Authoring	**A**	**- Awareness Level**
	G	**- Guided Level**
	I	**- Independent Level**
	M	**- Mastered**
	O	**- Optional**

Standards and Core Competencies

Standards:

4. Technology Communication Tools

- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

5. Technology Research Tools

- Students use technology to locate, evaluate, and collect information from variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technology innovations based on the appropriateness to specific tasks.

6. Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

6. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8	9	10	11	12
A	Understand and agree to the district's Acceptable Use Policy and ethics.	G	G	G	G	G	G	G	G	G	G	G	G	G
B	Understanding that web sites on the Internet are created with web-authoring tools that are displayed in a web browser.	A	G	I	I	I	M							
C	Use help menu as a method for problem solving.	A	A	G	G	I	M							
D	Use pre-made templates.	A	A	G	G	I	M							
E	Identify the software and hardware needed to publish web pages.				A	G	G	G	I	M				
F	Use web authoring software to create a simple web				A	G	I	I	M					

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	page incorporating text and links.										M				
E	Prepare text and images in the appropriate file format for publishing on the internet.					A	G	I	I	M					
F	Use web authoring software to create a web page incorporating images, backgrounds and tables.					A	G	I	I	M					
G	Use principles of design (proportion, balance, contrast, rhythm, emphasis, unity			A	G	G	G	I	I	M					
H	Upload (FTP) web pages to a file server			A	G	G	G	I	M						
I	Prepare files to be downloadable from the web.					O	O	O	O	O	O	O			
J	Use advanced techniques (e.g., frames. layers and roll overs).					O	O	O	O	O	O	O			
K	Create forms to be used within a web page.					O	O	O	O	O	O	O			
L	Publish interactive databases on the web.					O	O	O	O	O	O	O			
M	Create and publish animations to the web. (e.g., using Flash)					O	O	O	O	O	O	O			

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Digital Literacy (Video and Digital Images)	A	- Awareness Level
	G	- Guided Level
	I	- Independent Level
	M	- Mastered
	O	- Optional

STANDARDS AND CORE COMPETENCIES

Standards:

4.   Technology Communication Tools

- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

5.   Technology Research Tools

- Students use technology to locate, evaluate, and collect information from variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technology innovations based on the appropriateness to specific tasks.

6.   Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

6. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate an communicate curriculum concepts to audiences inside and outside the classroom.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8	9	10	11	12
A	Use critical viewing skills.	G	G	G	G	G	G	G	I	I	I	I	I	M
B	Operate a DVD/VCR combo (play, record, fast forward, rewind, pause).	G	I	M										
C	Operate a video camera: turn it on/off, zoom, use camera angles.	A	G	I	I	M								
D	Operate a digital still camera: turn on/off, zoom, and flash operation.	A	G	I	I	M								

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Code	Skill													
E	Navigate through a multimedia presentation	I	I	I	I	**M**								
F	Use basic microphone techniques.	A	G	I	I	**M**								
G	Use help menu as a method for problem solving.	A	A	G	G	I	**M**							
H	Brainstorm and plan video organization and content: treatment (proposal), story-boarding, scripting, production schedule.	G	G	G	G	I	I	I	I	**M**				
I	Use production skills (e.g., camera shots/ movements, composition, lighting, microphone use and placement, video recording, directing).	G	G	G	G	I	I	I	I	**M**				
J	Use basic computer based photo editing applications (crop, resize, and reduce red-eye)	G	G	G	G	I	I	I	I	**M**				
K	Use basic computer based video editing applicaitons. (Add/edit video and still picture for time and content and add titles, transitions, effects, music and voice over to videos)	G	G	G	G	I	I	I	I	**M**				
L	Export photos and video in appropriate format and size for intended audience and appplication use.		A	G	G	G	I	I	**M**					
M	Import different file formats (graphics, sounds video, etc.) from video camera, still camera, and disk drives.	G	G	G	G	I	I	I	I	**M**				
N	Burn a movie to CD-ROM.		A	A	G	G	I	I	I	**M**				
O	Create and burn a movie onto a DVD with chapters, introductory photos/video and music.		A	A	G	G	G	I	I	I	**M**			
P	Plan, organize and save multimedia files.				A	G	G	G	I	I	I	**M**		
Q	Direct a multi-camera production: Studio and EFP (Electronic Field Production).				A	G	G	G	I	I	I	**M**		
R	Use music software to import digital music for video production purposes.	O	O	O	O	O	O	O	O	O	O	O	O	
S	Use advanced editing systems (e.g., Final Cut Express, Final Cut Pro, Avid)	O	O	O	O	O	O	O	O	O	O	O	O	
T	Create advanced animation (2-D, 3-D, stop motion).		O	O	O	O	O	O	O	O	O	O	O	

Web Research	**A** - Awareness Level **G** - Guided Level **I** - Independent Level **M** - Mastered **O** - Optional

Standards and Core Competencies

Standards:

2.   Social, Ethical, and Human Issues

- Students understand the ethical, cultural, and societal issues related to technology.
- Students practice responsible use of technology systems, information, and software.
- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.

4.   Technology Communication Tools

- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

5.   Technology Research Tools

- Students use technology to locate, evaluate, and collect information from variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technology innovations based on the appropriateness to specific tasks.

6.   Technology Problem-Solving and Decision-Making Tools

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

Core Competencies:

10. Research and evaluate the accurace, relevance, appropriateness, comprehensiveness, and bias of electronic informaiton sources concerning real-world problems.

6.   Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences

inside and outside the classroom.

7. Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information, and to develop solution or products for audiences inside and outside the classroom.

	Knowledge and Skills	K	1	2	3	4	5	6	7	8	9	10	11	12
A	Understand and agree to the district's Acceptable Use Policy and ethics.	G	G	G	G	G	G	G	G	G	G	G	G	G
B	Use browser application tools to navigate web pages and sites.	G	G	I	I	M								
C	Use nonlinear text features incorporated in web pages (e.g. frames, hyperlinks and pop-up windows) to read for information.	G	G	I	I	M								
D	Use natural language search techniques for research on the Internet.	A	G	G	I	I	M							
E	Use bookmarking systems for gathering and retrieving web URLs specific to information needed and for citing sources.	A	G	G	I	I	M							
F	Use find and sort in an online database to locate information.	A	G	G	I	I	M							
G	Construct key words from research questions to search for information using subject directories (e.g. Yahooligans).	A	G	G	G	G	I	I	I	M				
H	Construct key words from research questions and combine with search techniques (e.g. lower case, "quotes", +, -, *wildcard, link:, title:) using search engines (e.g. Alta Vista).		A	A	G	G	G	I	I	M				
I	Know when to use a directory, engine or specialized directory to accomplish a searching task.		A	A	G	G	G	I	I	M				
J	Use bookmarking systems for gathering and retrieving web URLs specific to information needed and for citing sources.		A	A	G	G	G	I	I	M				
K	Download and store web pdf., audio, video and graphic files specific to information needed and for citing sources.	A	A	G	G	G	I	I	I	M				
L	Evaluate the reliability and validity of web pages, sites and multimedia files gathered.			A	G	G	G	I	I	M				
M	Organize information from multiple sources through note taking, outlining and graphic organizers. Cite sources of gathered information.			A	G	G	G	I	I	M				
N	Synthesize information from multiple sources in an authentic product or presentation in order to give evidence of new understanding.			A	G	G	G	I	I	M				
	Use telecommunication and collaboration tools to gather information, data and feedback on content related projects.			A	A	G	G	I	I	M				

O	Use specialized search directories (e.g. newspapers, government, science)			A	A	G	G	G	I	I	I	M	
P	Construct key words from research questions and combine with Boolean queries (AND, OR, AND NOT, NEAR) using search engines (e.g. Alta Vista, Excite) in advanced searches.						A	A	A	G	G	I	M

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The ISTE National Educational Technology Standards (NETS•A) and Performance Indicators for Administrators

1. Visionary Leadership.
Educational Administrators inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization.

Educational Administrators:

a. inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders
b. engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision
c. advocate on local, state, and national levels for policies, programs, and funding to support implementation of a technology-infused vision and strategic plan

2. Digital-Age Learning Culture.
Educational Administrators create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students.

Educational Administrators:

a. ensure instructional innovation focused on continuous improvement of digital-age

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learning
  b. model and promote the frequent and effective use of technology for learning
  c. provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners
  d. ensure effective practice in the study of technology and its infusion across the curriculum
  e. promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital-age collaboration

3. Excellence in Professional Practice.

Educational Administrators promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources.

Educational Administrators:

  a. allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration
  b. facilitate and participate in learning communities that stimulate, nurture, and support administrators, faculty, and staff in the study and use of technology
  c. promote and model effective communication and collaboration among stakeholders using digital-age tools
  d. stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning

4. Systemic Improvement.

Educational Administrators provide digital-age leadership and management to continuously improve the organization through the effective use of information and technology resources.

Educational Administrators:

  a. lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources
  b. collaborate to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning
  c. recruit and retain highly competent personnel who use technology creatively and proficiently to advance academic and operational goals
  d. establish and leverage strategic partnerships to support systemic improvement
  e. establish and maintain a robust infrastructure for technology including integrated, interoperable technology systems to support management, operations, teaching, and learning

5. Digital Citizenship.

Educational Administrators model and facilitate understanding of social, ethical, and legal issues and responsibilities related to an evolving digital culture.

Educational Administrators:

    a. ensure equitable access to appropriate digital tools and resources to meet the needs of all learners

    b. promote, model, and establish policies for safe, legal, and ethical use of digital information and technology

    c. promote and model responsible social interactions related to the use of technology and information

    d. model and facilitate the development of a shared cultural understanding and involvement in global issues through the use of contemporary communication and collaboration tools

1. **Facilitate and Inspire Student Learning and Creativity**
   Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.
   Teachers:

   a. promote, support, and model creative and innovative thinking and inventiveness.

   b. engage students in exploring real-world issues and solving authentic problems using digital tools and resources.

   c. promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes.

   d. model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments.

2. **Design and Develop Digital-Age Learning Experiences and Assessments**
   Teachers design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S.
   Teachers:

   a. design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity.

   b. develop technology-enriched learning environments that enable all students to

pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress.

    c.   customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources.

    d.   provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching.

3. Model Digital-Age Work and Learning
Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.
Teachers:

    a.   demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations.

    b.   collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation.

    c.   communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats.

    d.   model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning.

4. Promote and Model Digital Citizenship and Responsibility
Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices.
Teachers:

    a.   advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources.

    b.   address the diverse needs of all learners by using learner-centered strategies providing equitable access to appropriate digital tools and resources.

    c.   promote and model digital etiquette and responsible online social interactions.

1. **Creativity and Innovation**

    Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

    Students:

    a. apply existing knowledge to generate new ideas, products, or processes.
    b. create original works as a means of personal or group expression.
    c. use models and simulations to explore complex systems and issues.
    d. identify trends and forecast possibilities.

2. **Communication and Collaboration**

    Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

    Students:

    a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
    b. communicate information and ideas effectively to multiple audiences using a variety of media and formats.
    c. develop cultural understanding and global awareness by engaging with learners of other cultures.

   d. contribute to project teams to produce original works or solve problems.

3. Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information.

Students:

   a. plan strategies to guide inquiry.

   b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.

   c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.

   d. process data and report results.

4. Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Students:

   a. identify and define authentic problems and significant questions for investigation.

   b. plan and manage activities to develop a solution or complete a project.

   c. collect and analyze data to identify solutions and/or make informed decisions.

   d. use multiple processes and diverse perspectives to explore alternative solutions.

5. Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

Students:

   a. advocate and practice safe, legal, and responsible use of information and technology.

   b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.

   c. demonstrate personal responsibility for lifelong learning.

   d. exhibit leadership for digital citizenship.

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

Students:

a. understand and use technology systems.

b. select and use applications effectively and productively.

c. troubleshoot systems and applications.

d. transfer current knowledge to learning of new technologies.