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Integrating Multimedia Education into Learning Activities for Students Ages Five through Seven

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INTEGRATING MULTIMEDIA EDUCATION
INTO LEARNING ACTIVITIES
FOR STUDENTS AGES FIVE THROUGH SEVEN

A Project
Presented to
the Faculty of the Graduate School
Central Washington University

In Partial Fulfillment
of the Requirement for the Degree
Master of Education

by
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And last but not least the inspiration of my father, Dean Riley and his wife Marilyn, for without your inspiration I could not see how important your dreams are! Keep reaching for them and never stop learning.

The Integration of Multimedia Education
into Activities for Students ages Five through Seven.

By

Sandra J. Riley

July 1996

The intent of this project was to adapt curriculum activities that integrate Internet technology with activities for children ages five through seven. Review of selected literature, relevant to the integration of technology was conducted. Findings presented support the integration of multimedia technology into the instruction of young children. Portions of the Washington State Essential Learnings for reading, writing, and communication were incorporated in the development of the activities for use in the early childhood classroom.

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CHAPTER I

Statement of the Problem

Technology is an increasingly vital part of our economy. It is imperative that our children be prepared to move into the 21st century, and it is never too early to start.

The Honorable Tracey Eide
Representative
State of Washington

Eide's statement can be interpreted in two ways. First, he has suggested that technology will be needed by students to assure their success in the years ahead. Second, he has implied that students need to begin developing skills in the use of technology at an early age. Providing students the opportunity to develop skills in the use of technology poses many challenges for teachers and students. Those challenges include the changing roles in education as well as the new methods of instruction.

Schofield & Verban (as cited in Stuebing, 1994)

"The introduction of computers into the classroom changes the teachers' role, as well, leading to decreases in teacher directed activities and a shift from didactic approaches to a constructivist approach" (p. 1).

New approaches in teaching include the constructivist approach, in which students are given the lead role in discovering new ways to get the same results. Research conducted by Ringstaff (1995) of Apple Classrooms of Tomorrow (ACOT) states "Compared with a traditional classroom, a constructivist learning environment places more responsibility on students for their own learning" (p. 10). Sewell (1995) also supported this innovative approach by saying, "Empowering

environments should facilitate engagement of intellectual activity, to encourage learners to take control of their learning and to reflect on the consequences of their activities to reflect on their own thinking” (p. 19).

Rationale for the Project

During the education reform movement, the shift in the curriculum has moved to competency based. Therefore, to keep up with rapidly changing technologies, teachers need ongoing training to keep abreast of current innovations. The intent of this project was to adapt curriculum activities that integrate the technology of the Internet into activities for children age five through seven. This project provides a resource of activities for early childhood educators wishing to make their classroom environment a place where students utilize the power of technology. To accomplish this purpose, review of current research and literature relevant to the integration of multimedia technology to assist in instruction was completed.

Limitations of the Project

For the purposes of this project, it was necessary to establish the following limitations:

1. Scope The curriculum of the Internet technology activities was designed for the use of students ages five through seven.
2. Research The literature reviewed was narrowed to research within the last ten (10) years because of the rapid changes occurring with technology. State agencies and private educational companies were contacted by e-mail and asked to submit information regarding content and teaching strategies unique to their educational programs. Due to the rapidly changing nature of the Internet, the addresses provided in the activities may change without notice.

Definition of Terms

For the purpose of this project relevant terms are defined as follows:

1. **Benchmark** - A point in time which may be used to measure or assess student progress (Commission on Student Learning 1995).
2. **Essential Learning** - A statement of what students should know and be able to do at the completion of their education. Serve as a guidepost for school districts and gives teachers flexibility in designing curriculum, teaching strategies and plans for instruction (Commission on Student Learning 1995).
3. **Internet** - An international "network of networks used for communication as well as for the collection and dissemination of information, ideas, and shared or common interests among groups of users" (Billings, 1995).
4. **Constructivism**-An instructional approach in which students take the lead role in their learning. Learning by discovery (Sewell 1995).

CHAPTER II

Review of Related Literature

Introduction

The Educational Reform movement in Washington State included the passing of House Bill 1209. Part VII Sec. 701. The Legislature recognizes that up-to-date tools will help students learn. Workplace technology requirements will continue to change and students should be knowledgeable in the use of technologies. (See Appendix A.)

The establishment of House Bill 1209 set in motion a planning and implementation phase of the Washington State Technology Plan. In a report to the legislature on the implementation of the education reform act, the purpose of the planning stage was as follows:

To develop a state technology plan to coordinate and expand the use of education technology in the common schools of the state, addressing:

- A. The provision of technical assistance to schools and school districts for the planning, implementation, and training of staff in the use of technology in curricular and administrative functions.
- B. The continued development of a network to connect school districts, institutions of higher learning, and other sources of on-line information.
- C. Methods to equitably increase the use of educational technology by students and school personnel throughout the state.

“The purpose of the implementation stage of the plan was as follows: To increase the relevancy and quality of K-12 student learning through technology and telecommunications” (p.11). (See Appendix B.)

The purpose of this project was to develop curriculum activities that integrate Internet technology to support the instruction of young children. The literature reviewed in Chapter II has been divided into three sections: (a) how education reform influences technology, (b) the

changing roles of the teacher and the student, (c) how technology fits in the education system.

How Education Reform Influences Technology

The interim report to the legislature on the Washington State Technology Plan for K-12 Common Schools (1994) suggests there is a need developing from these changes in our society. The interim report to the legislature on technology suggests educational reform should occur at four different levels. The first level of the report pertains to the curricula, and the methods used in instruction as one of the important areas to utilize the power of new technologies. The second level focuses on the use of technology in the appropriate problem solving situations. The third level is to utilize technology in the application of citizenship and public policies. Lastly, the fourth level is where educational reform will occur using technology in the management and administration of the school systems in Washington State. Washington State's Technology plan recognizes technology integration as a multi-level challenge and has provided opportunities for schools districts to receive funding in the form of grants.

To take full advantage of the learning possibilities technology can bring to education, a coherent systematic approach that will facilitate the incorporation of technology into the school curriculum must be undertaken. The state of Washington has taken the initiative to utilize technology in the schools across the state. The members of the Washington State Education Technology Advisory Committee believe (WSETAC, 1995)

A systems approach is required to take full advantage of the learning possibilities technology brings to education...that

means that technology should not be an add-on, but rather an integral part of the way learning is accomplished at the student, educator, building, district, community, and state levels (p. 44).

Their position supports the idea that technology should be part of the regular curricula and it is necessary for school districts as a whole to encompass the reform movement. W.S.E.T.A.C. members believe the fact that technology use in education expands the realm of the learning environment. This learning environment becomes unlimited with the use of the Internet and other modern technologies, such as videos, CD-ROMS, Laserdiscs, Hypertext, and Software Programs.

The Changing Roles of the Teacher and Student

Because of the shift from traditional to more learner centered classrooms, teachers realize their students must become lifelong learners, and they are expecting their students to take more responsibility for managing their own learning (Kearsley, 1992).

Garmstron and Wellmann (1994) found that interaction occurring in the classroom is increased with the constructivist approach, because students are finding a variety of ways to achieve the same results. According to Garmstron and Wellmann "The most important interaction is between the participant and the content. Structuring meaningful engagement between partners and with trios, table groups, and small groups becomes a key presentation skill" (p. 84). The structuring and planning of the interactions is the responsibility of the trained and knowledgeable teacher. Another key point discussed by Garmston and Wellman is that the constructivist learning theory places importance on

the learner's point of view, which is completely different from the teacher-centered lessons of the past. According to Dwyer (1994), Children interacted with one another more frequently while working at computers. And the interactions were different--the students spontaneously helped each other. They were curious about what others were doing. They were excited about their own activities and they were engaged. Those behaviors were juxtaposed against a backdrop in which the adults in the environment variously encouraged and discouraged alternative patterns of operation. It was as if they were not really sure whether to promote or inhibit new behaviors (p. 6).

New instructional approaches focus on student learning instead of on what topic the teacher lectures. Knapp and Glenn (1996) support the constructivist approach by saying:

Newly acquired information on how students learn clearly indicates that the teacher's role must change. The conventional lecture-practice-recall instructional model needs to be replaced by one that assists students to find and put information together in unique and different ways, to critically analyze it, and to relate the information to their own knowledge and skills...Tomorrow's citizens must be able to take raw data, continually search for new ways to represent reality and solve problems. To achieve these goals students need to learn how to assess and revise their own learning. They must manipulate their knowledge and continually refine their own understanding of the world (pp. 9-10).

Knapp and Glenn (1996) in their research on the effect of integrating technology into classroom instruction effectively, suggest the following about teachers teaching technology. The teachers say they:

- Expect more from their students and expect their students to take more care in preparing their work.
- Can present more complex material.
- Believe students understand more difficult concepts.
- Can meet the needs of individual students better.
- Can be more student-centered in their teaching.
- Are more open to multiple perspective on problems
- Are more willing to experiment.
- Feel more professional because, among other things, they spend less time dispensing information and more time helping students learn.

As a result, it is probable that our educational system will become focused on the individual students and the students will learn in new and exciting ways.

W.S.E.T.A.C. believes that the education system must prepare children and youth to successfully meet the challenges of the changing technological information-based society. Students will take responsible roles in their learning and become active participants in their education which will help them to become productive and contributing members of society. The vision for K-12 Education Technology in Washington State (1993) is as follows:

In a society increasingly dependent on information, a critical component of education is equitable and universal access to technology and information

resources. With these tools and the guidance of skillful educators as well as community members, students take responsible roles in their own learning and are actively engaged in creating learning environments as they think, solve problems and communicate in collaborative and interdisciplinary settings. Students emerge as lifelong learners, productive members of the workforce, and contributing citizens (p.13).

This vision provided the foundation for what the future will hold for technology in our educational system in Washington state.

How Technology Fits in the Education System

According to Judith Billings, State Superintendent of Public Instruction (1994), "With intelligent thoughtful integration into the K-12 education system, technology and telecommunications can serve as levels and equalizers, bringing all children new opportunities to learn" (p. 8).

With respect to learning, Muir (1995) states "Learning to use the computer is only a secondary objective. The primary objective is to learn ideas from math, science, language arts, social studies, or some other content area" (p. 30). Muir believes that the environment of the classroom is shifting from one in which students study separate subjects, to one that provides opportunities in the application and utilization of skills. If learning in subject areas is the primary goal, students and teachers need technology where it can be easily utilized.

Teachers have to plan and structure activities so students are empowered. Sewell (1995) believes, "The purpose of empowering environments is to shift the locus of control away from the technology

and towards the learner” (p. 19). This is a necessary shift for the constructivist approach to be effective, and for technology to remain a tool for learning instead of the focus of learning. Sewell supports the idea of the computer being used as a tool in education as long as the decision affecting the curriculum are made based on the methods used for instruction. Sewell goes on to say, “The computer should be a tool which serves our educational objectives” (p. 3).

One of those educational objectives is allowing students to take the lead in their learning. The constructivist approach allows students to build new knowledge based on things the students already knew. Piaget’s learning theory has some similarities to the constructivist approach. In the Piagetian model, development occurs as a progression through a series of stages, each characterized by its own form of equilibration. As essential component in this model is that learning is only possible if a complex structure is based upon a simpler structure...learning should be based on existing knowledge and understanding is one of the most significant features to emerge from Piagetian psychology (Sewell 1995, p. 17). This important component of the Piaget model is present when students are learning in a constructivist classroom setting. Students are provided the opportunity to discover numerous ways to get an end result. That is why it imperative for teachers to recognize and consider this theory when establishing new curricula and activities in conjunction with technologies. Kearsley (1992) says, “As teachers develop more experience with computers as learning and thinking tools, they realize that the computer could be a vehicle for restructuring curriculum and classroom practice” (p. 3).

Strommen (1995) believes, "Technology has the opportunity to succeed as a tool for collaboration. Education must wholly embrace cooperative learning as an essential instructional method, and at the same time repurpose technology from skill-building tutor into an open-ended catalyst for collaboration among leaders" (p. 27).

The use of the computer in the classroom allows the teacher to individualize instruction for each student. Teachers should try to ensure that students' individual differences are taken into account in the computer lab, as in the classroom (Alvestad & Wigfield 1993).

Sewell (1995) says, "Many software programs designed for educational use target either the traditional curriculum areas, or are designed to engage the individual learner in a wider range of cognitive activities" (p. 29). Certain computer software programs provide opportunities for students to receive individualized instruction. Guthrie and Richardson (1995) say, "Teacher's use of Early Language Connections (ELC) to support writing development ranges from individualized activities in which a student works at the computer, composing, revising, and publishing his or her work, to peer group assignments in which collaboration, communication, and cooperation are key" (p. 14).

According to the North Central Regional Educational Laboratory (NCREL) "the only real measure of the effectiveness of technologies and technology-enhanced educational programs is the extent to which they promote and support students' engaged learning and collaboration"(p. 1). Phil Schlecty (as cited in Strong, 1995) describes students who are engaged in their work as exhibiting three characteristics:

1. They are attracted to their work
2. They persist in their work despite challenges and obstacles

3. They take visible delight in accomplishing their work (p. 8). Strong (1995) wrote that people who are engaged in their work are driven by four essential goals, each of which satisfies a particular human need:

Success (the need for mastery)

Curiosity (the need for understanding)

Originality (the need for self-expression)

Relationships (the need for involvement with others)

Energy (essential for a complete and productive life)

This concept spells the acronym SCORE. The concept of SCORE is also a metaphor about performance, but one that also suggests a work of art, as in a musical score. By aiming to combine achievement and artistry, the SCORE model can reach beyond strict dichotomies of right/wrong and pass/fail, and even bypass the controversy about intrinsic and extrinsic motivation, on which theories of education motivation have long been based (p. 9).

Motivation

The role of the motivating teachers depend on how well they know their students, and is just as important as knowing the subject. In order to motivate and engage students, teachers must create a classroom environment in which every student comes to believe, "I count, I care, and I can."(Dodd 1995, p. 65). Dodd goes on to say what teachers need to know the most about their students is hidden; unless they develop a trusting relationship with their students, teachers will not have access to the knowledge they need either to solve classroom problems or to motivate students. It is important for teachers to take the time to get to know all of their students for just this reason. Ultimately it could provide valuable information critical for students' learning.

NCREL's framework for effective learning includes seven variables that indicate that effective teaching and learning are occurring as follows:

- children are engaged in authentic and multidisciplinary tasks
- assessments are based on students' performance of real tasks
- students participate in interactive modes of instruction
- students work collaboratively
- students are grouped heterogeneously
- the teacher is a facilitator in learning
- students learn through exploration

According to the National Association of Educator of Young Children (NAEYC) position statement (as cited by Cutright1992),

"Knowledge is not something that is given to children as though they were empty vessels to be filled. Children acquire knowledge about the physical and social worlds in which they have lived and through playful interaction with objects and people. Children do not need to be forced to learn; they are motivated by their own desire to make sense of the world...the correct way to teach young children is not to lecture or verbally instruct, teachers of young children are guides or facilitators" (p.121).

Cutright refers to "playful interaction with objects" (p.121) which works well with the integration of computer structured activities. Cutright suggested young children are motivated by the need to understand the world that surrounds them (p. 121).

Children need to be presented with the opportunity to become engaged in the world around them. The characteristics of students engaged in learning according to Strong (1995) show these three characteristics:

1. Students are attracted to their work.
2. They persist in their work despite challenges and obstacles.
3. They take visible delight in accomplishing their work.

Strong (1995) suggests in the previous statement that students will display enthusiastic and tenacious behavior when they are engaged in learning.

Guthrie and Richardson's (1995) findings denote that students are drawn to technology and are intrinsically motivated to use computers. "At each site we visited, we saw students who were always eager to have their time at the computer, whether to complete an assignment from the teacher or to engage in activities of their choice. When many children were offered a choice of many classroom activities, computers were always the most popular option. Teachers told us that children's productivity has gone up and that students' compositions were now longer and better" (p. 16).

Sandholtz of ACOT (1990) states:

"The introduction of computers into the classrooms has brought about numerous changes in student engagement. Students displayed increased initiative by going beyond the requirements of assignments, and by independently exploring new applications. The time students spent on assignments and projects increased when they used the

computers, and they chose to work on the computers during free time and after-school hours” (p. 9).

It is critical that school districts recognize the need for training and provide opportunities for educators to keep up because technology changes at a rapid pace. Most teachers lack training in the use of Internet technology. According to Siegel (1995) computers are an innovation that should become a part of teachers’ repertoire, and not just a reward for students when they finish their work.

The training technique reported by Bias and Carey (1996) is made up of teams of two students and one teacher. These teams take the summer to learn how to use and produce multimedia products for their classes, and become “in-house” (p.18) experts to help other teachers and students in their schools become proficient in technology integration.

Siegel (1995) reported that despite lip service to curriculum integration the majority of staff development efforts are directed at equipment training. Two thirds of the *Electronic Learning* respondents said the most recent workshop their school or district offered was training on a specific software title or a piece of hardware. Less than a quarter of training (21%) focused on curriculum issues.

CHAPTER III

Methods and Procedures

Writer’s Intent

The writer wanted to create a resource in which teachers could utilize the Internet in their classrooms. The intent was not to create the resources, but to locate, adapt and notate existing curricula to

incorporate the use of the Internet. At least one and up to three Internet site(s) were included with the activity to provide a current resource for the teacher to use.

Format

The writer created an easy-to-read format for the adaptation of the activity to make it easy for the teacher to follow.

Data Collection

While looking through many books and curricula, it was this writer's purpose to find and adapt materials that would appeal to young children. The writer wanted to provide new ways of adding to an activity by including a site on the Internet for the children to be able to explore and learn by discovery. The purpose of this project was to adapt curriculum activities that integrate Internet technology into instructional activities for children ages five through seven. To accomplish this purpose, current research and literature related to the integration of multimedia technology to assist in the teaching of early childhood students was conducted.

Chapter III contains background information describing:

1. Need for the Project
2. Development for Support of the Project
3. Procedures

Need for the Project

The need for the project was influenced by the following considerations:

The absence of an elementary curriculum that utilizes the Internet creates a need for research and development in this new area.

Washington State Technology Plan (1995) refers to the SCANS report (1991) that reported, "Our present education system does not prepare students to enter a workforce that has been drastically altered by the globalization of commerce and industry, and the explosive growth of technology, and the explosive growth of technology on the job" (p. 21).

The Commission on Student Learning has released Essential Learnings for the Education Reform Goals. (See Appendix C). The benchmark(s) met by each activity were identified.

Development of Support for the Project

In response to the educational reform movement the state of Washington has established seven recommended essential learnings in the area of technology. The technology essential learnings were incorporated in the benchmarks associated with Essential Learning Goals 1 and 2. The essential learnings (1994) for technology are as follows:

1. The student as information navigator. The student recognizes and values the breadth of information sources, browses those sources, differentiates and selectively chooses sources, and retrieves appropriate information/data using all forms of media, technology and telecommunications.
2. The student as critical thinker and analyzer using technology. The student reviews data from a variety of sources, analyzing, synthesizing and evaluating data to transform it into useful information and knowledge to solve problems.
3. The student as creator of knowledge using technology, media and telecommunications. The student constructs new meaning and information through technology, telecommunications and computer modeling/simulations.

4. The student as effective communicator through a variety of appropriate technologies/media. The student creates, produces and presents ideas, stories and unique representations of thoughts through a variety of media by analyzing the task before him/her, the technologies available, and appropriately selecting and using the most effective tool(s)/media for the purpose and audience.
5. The student as a discriminating selector of appropriate technology for specific purposes. The student discriminates among a variety of technologies and media to extend and expand his/her capabilities.
6. The student as technician. The student develops sufficient technical skills to successfully install, set up and use the technology and telecommunications tool in his/her daily life, work situations and learning environments.
7. The student as a responsible citizen, worker, learner, community member and family member in a technological age. The student understands the ethical, cultural, environmental and societal implications of technology and telecommunications, and develops a sense of stewardship and individual responsibility regarding his/her use of technology, media and telecommunications networks, respecting historical context and enhancing cultural lineage with integrity and concern for truth (p.15).

Procedures

A review of literature was completed on the effects of integrating multimedia technology into the instruction of young children. Materials were collected from Apple Computer and Washington State OSPI.

Materials were also obtained from on-line resources on the Internet.

The writer conducted an ERIC search and found over eighty articles that were reviewed. Then the writer made phone calls to the following state agencies:

1. Commission On Student Learning (CSL)
2. Educational Technology and Environmental Education
3. Center for the Improvement of Student Learning (CISL)

The writer also logged over 300 hours on the Internet locating resources that would be potentially useful.

CHAPTER IV

Chapter IV is comprised of activities that were taken from other sources and have been adapted to incorporate the use of the Internet to help support the learning ideas. Some of the essential learnings that are met by these activities have been identified. A template was used to make the activities easy to follow. Some of the activities included extension ideas to help incorporate them into the existing curriculum. The teacher's procedure and the student performance sections of the activity were kept simple so the teacher can quickly get the main idea.

Activities

1. COLD CASH IN THE ICEBOX
2. AQUA NOTES
3. FROG HIDE AND SEEK
4. INDIAN BOY
5. AIR HAS WEIGHT
6. WHAT ANIMAL AM I?
7. WISHES UPON STARS
8. TWO STICK KITE
9. BLOOMING IDEAS
10. LETTER OF THE WEEK
11. TEDDY BEAR JUMP ROPE JINGLE
12. COLORS OF THE WEEK

A sample template (See Appendix D), describes what is found in each box to assist the reader in finding the information contained in the activity.

Title

Topic: Look for the topic or subject in this space

Materials: A materials list will be found in this space

Objective/Outcome: The objectives the activity will attain will be in this space.

Technology Adaption: Look for Internet spots in this space to help support the activity.

Teacher Procedures

- In this space will be what the teacher needs to complete the activity

-
-

Student Performance

- In this space can be found what the students will be doing during the activity.

-
-
-

Extensions: In this space in some of the lessons can be found other ideas and things to do in order to extend the lesson.

Benchmarks:

- In this space is the specific essential learnings and benchmarks that will be met by the activity.

Adapted from:

In this space is where the activity was originally found.

Chapter V

Summary

The intent of this project was to adapt curriculum activities that integrate Internet technology with activities for children age five through seven. This project provides a resource of activities using the Internet for early childhood educators wishing to make their classroom environment a place where students utilize the power of technology. To accomplish this purpose, analysis of current research and literature relevant to the integration of technology to assist in instruction was completed.

To keep up with rapidly changing technologies, teachers need ongoing training to keep abreast of current innovations. School districts need to take a role in providing in-service opportunities for staff development with regards to technology and how it fits into the curriculum. The technology plan for the state of Washington has twelve recommendations which should be addressed to help the statewide educational system become a technological learning environment (See Appendix C).

Planned Implementation of the Project

The writer plans to utilize computers and other technology in an elementary classroom and will have these activities as a start. Future use of these lessons includes a proposal for a technology grant at an elementary school where the writer is employed.

Conclusions

Conclusions reached as a result of this project were:

1. Implementing technology into the curriculum takes time and money for training.

2. Educational Reform plays a critical role for the future of technology in classrooms around the state.
3. Educational systems and roles in that system are changing rapidly. To keep up with that change it is necessary to provide time and money for staff training with the use of technology, as well as the encouragement of pilot programs throughout the state.
4. Technology is a natural motivator and should be utilized as a tool in education to help students reach their potential.

Recommendations

1. Each Administrative team should make it his/her responsibility and priority to facilitate grant writing to obtain money for the purchase of technology for the schools and specific training for teachers on curriculum adaptation.
2. Educational Reform paves the way for technology's entry into the curriculum. Administrators should recognize the need for feedback and revision of technology plan already in place and the needs for the future, short term and long term.
3. Teachers should be responsible for updating curriculum and methods of instruction.
4. Administrators should provide technology in every learning environment throughout the school in which they work.

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CHAPTER IV

Chapter IV is comprised of activities that were taken from other sources and have been adapted to incorporate the use of the Internet to help support the learning ideas. Some of the essential learning have been identified that are met by these activities. A template was used to make the activities easy to follow. Some of the activities included extension ideas to help incorporate them into the existing curriculum. The teacher's procedure and the student performance sections of the activity was kept simple so the teacher can quickly get the main idea.

1. COLD CASH IN THE ICEBOX
2. AQUA NOTES
3. FROG HIDE AND SEEK
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11. TEDDY BEAR JUMP ROPE JINGLE
12. COLORS OF THE WEEK

A sample template (See Appendix D), describes what is found in each box to assist the reader to find the information contained in the activity.

Cold Cash in the Icebox

Topic: Science

Materials: Pint-size milk carton
Variety of insulation materials for insulating ice (straw, grass, fabric)
Ice Cubes

Objective/Outcome:

Students design mini-insulators (iceboxes) in an attempt to keep ice from melting and discover the challenges of refrigeration 100 years ago.

Technology Adaptation: The site for this lesson works in conjunction with the extension activity for this lesson. The ice cream site has links to the Ben & Jerry's Ice Cream Homepage. The students will visit this site and find out the top ten flavors of Ben & Jerry's ice cream company. They will also find recipes for other flavors of ice cream.

Teacher Procedures

- Discussion about how people kept food cold before refrigerators.
- Pass out materials
- Place an ice cube in a milk carton without any insulation as a control.
- Facilitate discussion about differences in the iceboxes and the ice cube without insulation.

Student Performance

- After the discussion students will predict and record the materials they believe would be good insulators.
- Students will draw a picture of what they think their icebox should look like.
- Students construct iceboxes like their pictures.
- Students place iceboxes on a table together out of direct sunlight. Make sure they check them approximately every two hours.

Extensions:

Students can make ice cream. Combine 1 cup of cream, 2 tbsp vanilla, sugar, and 2 tbsp canned milk in an empty, clean 1 pound coffee can. Tape the lid on the can and place in a 3 pound coffee can. Pack ice and rock salt in the space between the coffee cans. Tape the lid on the 3 pound can. Roll the coffee can on the floor for fifteen minutes. It is ready when the smaller can sound is solid.

Benchmarks:

- Essential Learning for Communication #2
To observe and listen to gain and interpret information.
- Essential Learning for Communication #1
Focuses attention

Adapted from: Cold Cash in the Icebox Project WET Curriculum and Activity Guide (1995) The Water Course and Western Regional Environment Educational Council.

Other Ice Cream Pages

Last Updated: June 1, 1996

I used Lycos to search for "Ice Cream" and was a bit overwhelmed by the results. I only partially checked the results (okay, so I was mainly interested in seeing if my page was there -- it wasn't), and added some interesting ones here, but I really should reorder this page and do a more thorough search.

I have also obtained several sites by tracing some of the links appearing in the pages I found from Lycos.

And more recently, I used OpenText to search for Ice Cream.

Ice Cream Sites

- [The Liquid Nitrogen Ice Cream Page](#)
 - [Ice Cream](#) : University of Guelph ice cream homepage
 - [Top Ten Banned Ben & Jerry's \(tm\) Ice Cream Flavors](#)
 - [IN PRAISE OF BEN & JERRY'S](#)
 - [The Emperor of Ice-Cream](#) (not really an ice cream link...)
 - [Terri has a think](#) They never have ice cream.
 - [Corn-free Ice Cream and Yogurt](#) (most of my recipes are corn-free).
 - [Ian's Ice Cream Server](#)
 - [Ice cream for breakfast?](#)
 - [LA con II Ice Cream Social](#)
 - [Poem](#)
 - [Inquisitive Cook Ice Cream Page](#)
 - [Fish Ice Cream](#)
 - [THE 15 MOST POPULAR ICE CREAM FLAVORS](#)
 - [The Boy who Loved Ice Cream More than Anything Else in the World](#)
-

Recipes

I should have started a list of recipes sooner, so my list is a bit short and many of the other links on this page also give recipes.

- [CGL Favorites](#) is my list.
 - [Scoop Du Jour](#) Godiva Chocolatier page of recipes with pictures.
 - [jrs in Virginia](#)
 - [Waffle Cone](#)
-

Businesses

If you want your business listed here, [send me](#) your URL.

- [Amy's Ice Cream](#) Actually, this is a CBA Today report on Amy's Ice Cream.
- [Andersen's of Denmark Ice Cream Co.](#)
- [Appliances On Line Ice Cream Machines](#)

- [Baskin Robbins](#) (I haven't been able to connect to this site to check it out yet)
 - [Baskin Robbins](#) This is a link for a specific shop in Seattle. You can also have the ice cream couriered to you (which is why this page exists -- it's a subpage of the courier's page).
 - [Ben & Jerry's Homemade Inc.](#) Check it out.
 - [The Big Dipper](#)
 - [Brigham's Ice Cream](#)
 - [Bright Angel Fountain](#)
 - [Delva, Inc](#) Edible Ice Cream Fillers
 - [Dreyer's](#)
 - [Ice Cream World](#)
 - [Mea Culpa Ice Cream Company](#)
 - [The Unofficial Michael's Frozen Custard Page](#)
 - [Rhinestones R Us](#) . Ice cream cone with white rhinestone ice cream
 - [Sdk Micro-Creamery](#)
 - [Steinbrick's Nice](#) picture.
 - [Talking Kitchen Helpers](#) Down at the bottom you'll find talking ice cream scoops (I have the Ice cream man).
-

Pictures

- [Free Ice Cream](#)
 - [An Ice Cream Cone](#)
 - [Louie and Mousie's Ice Cream](#)
 - [Ice Cream](#) A demo photo of someone's digital image manipulation work.
-

Excerpts

Taken from large sites with small mention of ice cream or from temporary pages.

Extracted from [Japan Free Press and INFOPLAN Present](#) of July 25, 1995

New ice-cream age

Crab ice cream. Sea urchin ice cream. Wasabi (horseradish) ice cream.

Now it seems every local area has its own strange (unique?) kind of ice cream, Some other flavors include curry, notto fermented beans, and sesame. The Japan Ice Cream Association says these unique ice creams got their start in the mid-1980s. News of the flavors spread, and every locale strived to come up with a new one, to help bring prosperity to the community. The hot summer last year stimulated lots of ice cream sales - Y430 billion. This summer will be cool, say forecasters. But how will ice cream sell?

- Asahi Shimbun 7/13



Up one level.

Aqua Notes

Topic: Body Using Water

Materials: Copies of Aqua tunes, and Color body blue chart.

Objective/Outcome: Identify the different ways the body uses water and determine that it needs water.

Technology Adaption: The Internet site is called Dole Five a Day. The students will visit the Nutrition Center to learn about how the body uses food and water. The teacher can get a free CD-ROM for use in the classroom via the information given at this Website.

Teacher Procedures

- Teach songs line by line
- Use the songs to have the students color the body parts referred to in the song.
- Have students summarize the ways the body uses water.
- Have students write and share a story about water and their bodies.

Student Performance

- Students will sing songs line by line and then color the chart that is included where the body uses water (use the color blue).
- Students will color the chart according to the parts that the song they sing refers to.
- Students will write and share a personal story about their bodies and water.

Extensions: The teacher could have the students make up their own songs about water and their bodies.

Benchmarks:

- Essential Learning for Communication #1
Makes predictions
- Essential Learning for Communication #2
Uses effective delivery

Adapted from: Project Wet Curriculum, Curriculum and Activity Guide, Environmental Education Co.

Color Me Blue Body Chart

Aqua Tunes

Aqua Tunes

Aqua Tunes

(C) 1995 Dole Food Company (All Rights Reserved).



Frog Hide and Seek

Topic: Frogs

Materials: Plastic zip bags; aquarium or jar. Old clothes and a field trip to a swampy area where frogs grow.

Objective/Outcome: To find frog eggs and watch them change into frogs, recording the changes that occur.

Technology Adaption: The students will use the Internet site The Froggy Page to view some pictures of different types of frogs. I would also have them explore the area titled Froggy Sounds and Froggy Tales. To experience the sounds of full grown frogs.

Teacher Procedures

- Review safety procedures for a field trip.
- Get permission slips signed from parents before field trip.
- Allow time for the writing of stories upon return from the field trip.
- Emphasize the return of the grown frogs to nature after the class has watched them grow.

Student Performance

- Students record predictions
- Students practice safety tips learned in class.
- Students gather samples of green jelly-like substance in their containers.
- Students will write a story about their frog when it is grown up.

Extensions: Students could create a family of frogs and name each one. They can use the frog at the pond for the patterns and have each of the student create a family of frogs. Once the student has made the family of frogs and named each one then have them write a story about the family of frogs.

Benchmarks:

- Essential Learning for Writing #1
Use Appropriate Style: Voice

Adapted from: Bosak, Susan. Science is.. A source book of fascinating facts, projects and activities . Scholastic Publishing Co.

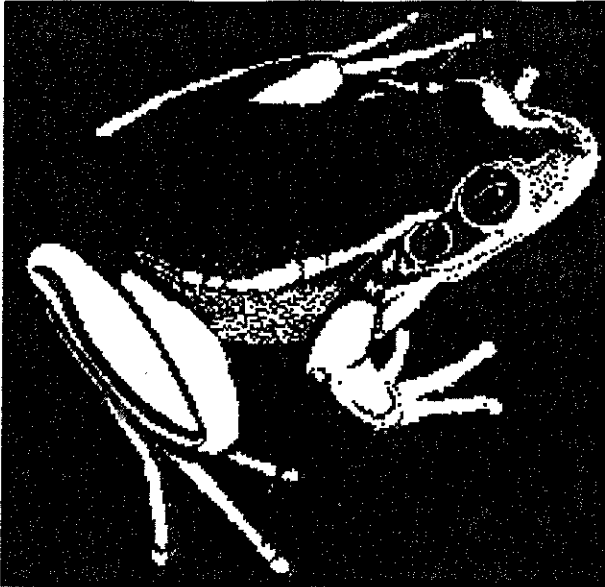
Frog at the Pond

Frog Pattern

Frog Front Feet

Each student will need two frog feet.

The FROGGY Page



Here is a bigger image of this frog.

This page contains links to froggy things from various places on the net, for your enjoyment. Ribbit!



New!

You can sing the frog song from the Muppet Frog Prince.

Visit the Kermit-Gonzo campaign headquarters and cast your vote for the Amphibious Party.

Check out the California red-legged frog fact sheet.

Ken Felsman's herp page has some nice froggy pictures.

(Last update: 26 Jun 1996)



Froggy Pictures

- Frog Pictures from Mike Pingleton's herp archive
 - Page 1
 - Page 2
 - Page 3
- More Froggy Images
 - Page 1

- [Page 2](#)
 - [Page 3](#)
 - [Page 4](#)
 - [Page 5](#)
 - [Smithsonian Institution Frog Pictures](#)
 - [Silly Frog Images](#)
 - [Froggy Clip Art](#)
 - [Page 1 \(B&W\)](#)
 - [Page 2 \(B&W\)](#)
 - [Page 3 \(B&W\)](#)
 - [Page 4 \(B&W\)](#)
 - [Page 5 \(B&W\)](#)
 - [Page 6 \(Color\)](#)
 - [ASCII Froggies](#)
 - [Frogs on Ice](#)
 - [Animated Froggies](#)
 - [Applied Microsystems Corporation debugger frog pictures](#)
 - [SAPO's neat froggy logos](#)
 - There are many more frog images on the "species information" pages listed under Scientific Amphibian!
-



Froggy Sounds

- [Blurp](#)
 - [Ka-blurp](#)
 - [Ribbet](#)
 - [More ribbets](#)
 - [East Texas frog croaks](#)
 - [Peep-peep](#)
 - [Lots of greedeeps](#)
 - [More frog sounds](#) from the Animal Diversity Web.
-



Froggy Tales

- [Frog Fables](#), by Aesop
- [The Frogs](#), by Aristophanes
- [The Frog Prince](#), by Grimm; illustrated hypertext in [English](#) or [German](#)
- [The Frog Princess](#), a story that has many variants:
 - [The Toad Princess](#), by Grimm
 - [The Frog Princess](#), a Russian version
 - [The Enchanted Toad](#), a Scandinavian version
- [The World's More Full Of Weeping](#), a toadly collection of fairy tales from [Kyle Cassidy](#).
- [The Wind in the Willows](#), by Kenneth Grahame
- [Why Frogs Croak](#), a Native American myth
- [The Tale of Mr. Jeremy Fisher](#), by Beatrix Potter

- *The Celebrated Jumping Frog of Calaveras County*, by Mark Twain
-



Songs of the Frog

- *Bein' Green*
 - *The Battle Hymn of the Ranapublic*
 - *I'm in Love With a Big Blue Frog*
 - *Frogs at School*, with sound and pictures!
 - *Kiss That Frog*
 - *Frog Song*
 - *The Vicar and the Frog*
 - *The Bullfrog King*
 - *Green Speckled Frogs*
 - *The Frog*
 - *Frog Went a Courtin'* (and more songs)
 - *Hot Frogs on the Loose*
 - *The Song of the Grizzelly Frogg*
 - *Frogs*, from the Muppet Frog Prince
 - More frog songs and rhymes
-



Scientific Amphibian

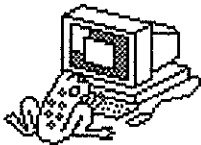
- Anatomy and Dissection
 - Whole Frog project, at Lawrence Berkeley Laboratory
 - Frog dissection tutorial, with graphic pictures of dead frogs :-)
- Declining Amphibian Populations
 - Worldwide frog populations decline (from San Francisco Chronicle)
 - Froglog, more news about disappearing frogs
 - Amphibian Declines in Australia
 - Bhs FrogWatch
 - Yosemite Frogs Project
- Species Information
 - Animal Diversity Web amphibian species page
 - Frogs of the Arabuko-Sokoke Forest, Kenya
 - Giant Toads invade Florida!!
 - South American ornate horned frog page
 - Rainforest Amphibians
 - European water frogs
 - Australian National Botanical Gardens Frog Page
 - The Tree of Life -- Salientia
 - Michigan Frogs and Toads
 - Ontario Frogs
 - Pine Barrens Treefrog fact sheet
 - California red-legged frog fact sheet
- Herpetological Resources

- [WWW Virtual Library Herpetology index](#)
 - [Australian Herpetological Directory \(James Cook University\)](#)
 - [American Federation of Herpetoculturists](#)
 - [Herp Link](#)
 - Embryology
 - [Xenopus laevis \(African clawed toad\) embryonic development](#)
 - [Amphibian embryology tutorial](#)
 - [NIH Laboratory of Molecular Embryology](#)
 - Miscellaneous
 - [Frequently Asked Frog Questions](#)
 - [Statistical models of frog muscles and spinal regions](#) (thesis by Eric Loeb)
 - [Dimorphism in anurans](#)
 - [The Xenopus Molecular Marker Resource](#)
 - [Minnesota New Country School Frog Project](#) (deformed frog study)
-



Famous Frogs

- [Muppet Show theme song](#) (audio file)
 - [Muppet Page](#)
 - [Muppet Treasure Island](#) page
 - [Kermit-Gonzo campaign headquarters](#)
 - [Michigan J. Frog](#) page
 - [Keroppi the frog](#)
 - [Rupert the frog prince](#) ("Happily Every After" comic strip)
 - [Fermaldehyde th' Frog](#) ("CultuRe Trap" comic strip)
-



Net.Frogs (*On the Internet, nobody knows you're a frog.*)

- [Mr. Pickle's home page](#)
- [Eddie the Frog's page](#)
- [Precious, a Really Big Frog](#)
- [Larry Keeran's frog page](#)
- [Jeff's frog page](#)
- [Le Coin des Grenouilles](#)
- [The Cyberpond](#), home of Sue the tadpole.
- [The Lily Pad](#)
- [Ookke's frog page](#)
- [Frogland](#)
- [Craig Latham's frog page](#)
- [Fargo Phraugh's page](#)
- [Ott's frog page](#)
- [Martin's pond](#)
- [Michele's frog page](#)

- [TOADS Island of Fun](#)
 - [Dmitry Pruss's frog page](#)
 - [La Marre de FrenchTalk](#)
 - [Daz's Froggy Page](#)
 - [FROG!'s page](#)
 - [Heji's Cyber Pond](#)
 - [Froglady's home page](#)
 - [Ken Felsman's herp page](#)
-



Other Froggy Stuff

- [Make an origami jumping frog!](#)
 - [Dr. Frog's Recipe Page](#)
 - [Slime Magazine](#) (frogs in the news)
 - [Froggy books](#)
 - [Froggy jokes](#)
 - [Commercial froggy links](#)
 - [Leapfrog!](#)
 - [Another jumping frog Java applet](#)
-

Read [about the Froggy Page](#).

Send fan mail, suggestions and additions to:

Sandra Loosemore / loosemore-sandra@cs.yale.edu



I support [free speech online](#).

Indian Boy

Topic: Indian Boy

Materials: Construction paper, Brown, Flesh, Black yarn to make braids, 2 paper fasteners, paste, scissors, crayons.

Objective/Outcome: Students will develop an understanding of the differences in the Native American and American culture.

Technology Adaption: One Internet site for this lesson is called Native Tech. Students will use this site to learn about baskets, beads, clothing, pottery and many Indian customs. Another good site is Native american Indian culture, education, art, science, history: Native sources.

Teacher Procedures

- Distribute materials to students
- Make patterns for each group of students
- Provide review of the differences in the Native American and American cultures.
- Assign story writing about the Native American family which their Indian boy belongs.

Student Performance

- Trace patterns, cut out and put together pieces
- Students work in groups to share scissors, paste and patterns.
- Students write a story about the Native American family that their Indian boy belongs.

Benchmarks:

- Essential Learning for Writing #2
Writes for different purposes
- Essential Learning for Communication #1
Focuses attention

Adapted from: Art for All Seasons. Evan Moor Publishing. 1993

Indian Boy

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- Students write a story about the Native American family to which their Indian boy belongs.

Benchmarks:

- Essential Learning for Writing #2
Writes for different purposes
- Essential Learning for Communication #1
Focuses attention

Adapted from: Art for All Seasons. Evan Moor Publishing. 1993

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You're welcome to send me E-mail at: prindle@uconnvm.uconn.edu



<http://indy4.fdl.cc.mn.us/~isk/>


Native American Indian -- Art, Culture, Education,
History, Science, --Native Sources, Metasite
C... ..

<http://indy4.fdl.oc.mn.us/~isk/>

Native American Indian -- Art, Culture, Education,
History, Science, --Native Sources, Metasite
Citations

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--Usage Statistics

Last updated: Thursday, July 04, 1996 - 10:59:46 PM

Air Has Weight

Topic: Science/Weather

Materials: Two identical balloons, Meter stick, String and sharp object

Objective/Outcome: Students will see air occupies space and has weight, and will predict what will happen if one balloon is popped.

Technology Adaption: The Internet site is called Meteorology A to Z. The students will use this site to explore different aspects about the weather. Another site students could use is Dan's Wild Wild Weather Page for Kids. This site has information about clouds, temperatures, pressure, humidity, wind, and other weather related things.

Teacher Procedures

- Blow up the balloons to the same size.
- Tape each balloon to the meter stick at the end it should balance.
- Have the students make predictions about what would happen if one of the balloons popped.
- Puncture one of the balloons. Have students discuss and write a paragraph about why they believe what happened

Student Performance

- Record predictions about what they would think will happen if one of the balloons is popped.
- Write a paragraph about what happened when the balloon popped and why.

Benchmarks:

- Essential Learning for Communication #1
Observe and listens to Gain and Interpret Information
-makes predictions from visuals

Adapted from: Bosak, Susan Science Is... A source book of fascinating facts, projects, and activities.
Scholastic Publishing Co.



Meteorology A to Z

(From the recording *Weather Dude* by Nick Walker)



[Download an audio clip 209kb](#)

[More songs](#)

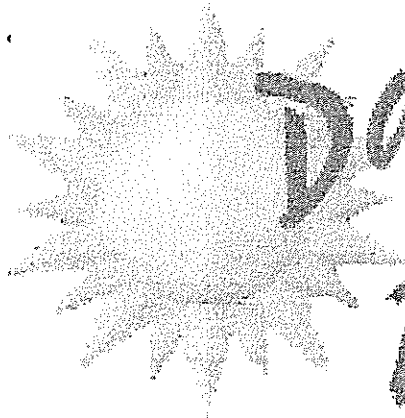


You can reach me by e-mail at: wxdude@nwlink.com

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Seattle, WA 98109-0535

©Copyright 1996 Nick Walker

C



Dan's

WILD WILD

Weather Page

AN INTERACTIVE WEATHER PAGE FOR KIDS

BY

Dan Satterfield

CHIEF METEOROLOGIST

WHNT-TV, Huntsville, Alabama



Hi, I'm NEWSCHANNEL 19's, Chief Meteorologist Satterfield. WELCOME to my WILD WILD WEATHER I I've put these pages together for Kids between 16 years old and for their Parents and Teacher

These pages will always be UNDER CONSTRUCTION. always be looking for new and interesting info to add to the WILD WILD WEATHER PAGE!

U N D E R C O N S T R U C T I O N



CLOUDS

TEMPERATURE

PRESSURE

HUMIDITY

CLIMATE

WIND

LIGHTNING

FORECASTING

SATELLITE

RADAR

TORNADOES

HURRICANES

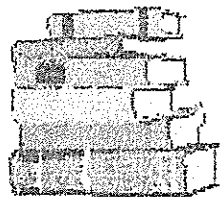
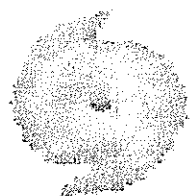
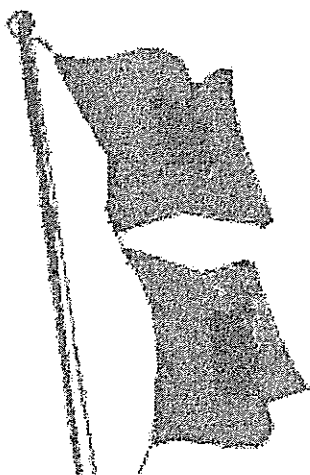
PRECIPITATION

ASK DAN ?

FOR TEACHERS

A to Z WEATHER INDEX

FROM USA TODAY



What Animal Am I?

Topic: Animals

Materials: Cards with picture of animals Make sure everyone gets a turn.

Objective/Outcome: Students will recognize characteristics of animals that are chosen.

Technology Adaption: The Internet Site that supports this activity is called The Electronic Zoo. Another site is The Zoo in the Wild which has access to Sea World and Busch Garden. The third site I found is The Preschool Page that offers a site that has At the Zoo. All of these site tell about animals and the students can explore them to look at pictures and to get more information about different animals.

Teacher Procedures

- Make cards with pictures of animals on it. Use magazine pictures.
- The person who is it is the guesser leaves the room while you tell the group what the animal is that they will be describing.
- The group can only respond yes or no or maybe.
- You could add charades to the game to make things more challenging.

Student Performance

- Selected person who is "it" leaves the room while the teacher tells the group what the animals is.
- The person can ask any questions but the group can only respond with a yes, no, or maybe answers.
- Students will answer questions with yes, no, or maybe answers.

Benchmarks:

- Essential Learning for Communication #1
Focuses Attention
- Essential Learning for Communication #3
Checks for Understanding by Asking Questions and Paraphrasing

Adapted from: Bosak, Susan. Science Is..A source boook of fascinating facts, projects and activities. Scholastic Publishing Co.

Questions or Comments about this server should be sent to:

Ken Boschert, DVM
Associate Director
Washington University
Division of Comparative Medicine
Box 8061, 660 South Euclid Avenue
St. Louis, Missouri 63110 USA

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THE PRESCHOOL PAGE

Send email to my Mommy at TravelGal@ames.net

To visit my Mommy's homepage, [click here.](#)

To visit TravelTips, [click here.](#)

To return to the AmesNet homepage, [click here.](#)

For other Family-Friendly pages, [click here.](#)

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Zoo in the Wild

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Wishes Upon Stars

Topic: Stars

Materials: A book about wishes for example *Three Wishes* by, Paul Galdone.
yellow construction paper with lines to write wishes on. Markers.

Objective/Outcome: Students will write their wish on their yellow stars and illustrate a picture of what it will look like when their wishes is granted.

Technology Adaption: This internet site is called Kid Corner Interactive Story. This story is incredible it puts the students and two friends right into a space story. The students will be encouraged to read the personalized story when they use the internet. This is a great way to get the students involved on a personal level.

Teacher Procedures

- Pass out stars to each students. Each student will need a marker.
- Encourage children to think of wishes to write about.
- Have students illustrate the picture of what will things look like when there dream comes true.

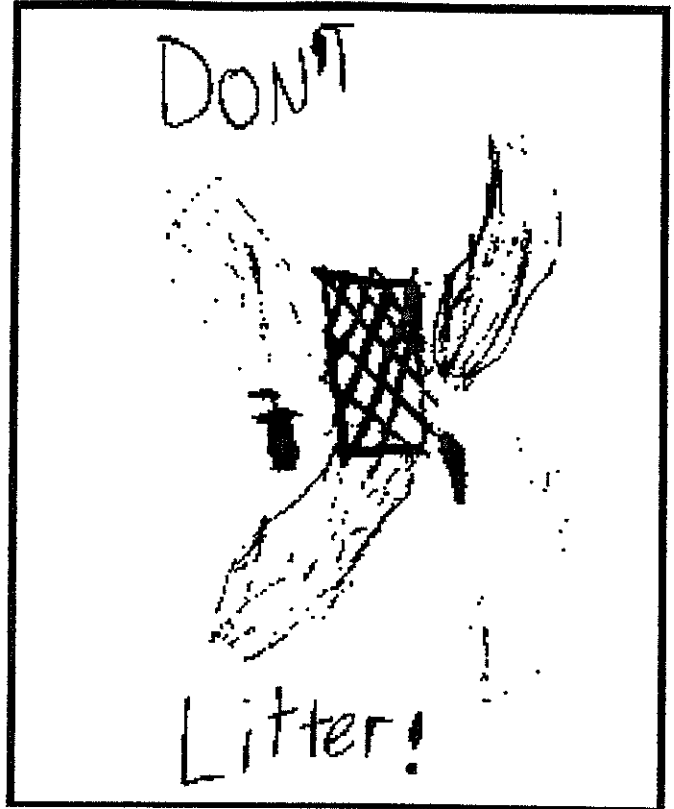
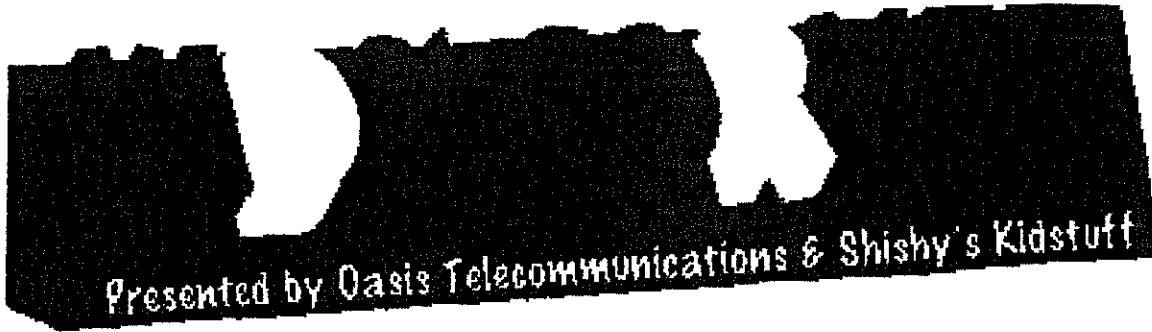
Student Performance

- Have student write the wish down on their star.
- Students will draw what their wish looks like after it comes true.
- Attach each star to the top of the picture and display all of the wishes on a bulletin board.

Benchmarks:

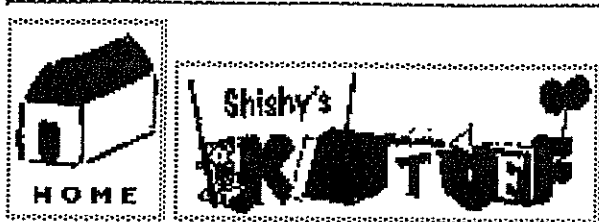
- Essential Learning for Communication #1
Focuses Attention
- Essential Learning for Communication #2
Communicates to Range of audiences for Variety of Purposes

Adapted from: MacKenthun, Carole. Primary Language Arts. Teaching and Learning Co.



Andrés Wewer, Age 6, 1st Grade

To send an image for our art gallery, e-mail us a 72 dpi gif file (300 x 240 pixels) along with your name, age, and grade to kidsgallery@oasis.ot.com, or mail your illustration to Kids's Corner, c/o Oasis Telecommunications, 1541 Alta Drive, Suite 303, Whitehall, PA 18052. If you'd like your image returned, please enclose a self addressed stamped envelope. *We'll pick a different image each week!*





Welcome to Shishy's Kidstuff! We're glad you stopped by!

A child's love of books starts early. With Create-A-Books®, your child can experience the magic of books in a new way. Your child is part of the story! Your child's name, town name, friends and family names are woven into the book. All our books come with a dedication page, so the giver's name is also included! Be sure to take a look at our books for grown-ups, audiotapes, and other gifts, too.

We hope you enjoy looking around "Shishy's Kidstuff" - there's lots to do and see! Be sure to see the sample book (personalized with your name!) and "Kids' Corner" filled with games to play and a "Kids' Guestbook" where you can share jokes and see who else has been here. (Parents: The Kid's Guestbook is monitored for content so you can feel comfortable letting your kids play here).

Enjoy!
Shishy



The sample book is an example of the many personalized children's books offered by Shishy's Kidstuff select a category below to browse.

List of Books:

Create-A-Books® - are over 30 pages long, hard covered, full color books which are personalized throughout. They are excellent as gifts for birthdays, holidays or anytime. They will be enjoyed for a lifetime...

Presto Sticker Books - make great gifts, especially if you're not sure of all the personalization information that you need. The Sticker books are professionally-bound, hard cover, full color books that come with a personalized sheet of stickers that you put in the book. You can order your personalized version now, or just order a unpersonalized book to give as a gift and let the recipient send in the personalization information later. (A form is included with the book.)

Fantasy Works - your child stars in these large (8 1/2" x 11") books with the characters they love - Bugs Bunny, GI Joe, Barbie, and more...

Holiday, Birthday and Special Occasion Books - look here for special books: New baby (including single parent, adoption, twins, Christian, and Jewish versions), birthday, Easter, Hannukah, Christmas, Kwanzaa, and others...

Grace Christian Publications - Are Christian stories re-told by Dr. Larry Hart, personalized with your child's name.

Special Activity Book - Sir Peepsqueek and his sidekick, Mouse Mallory take your child on a special

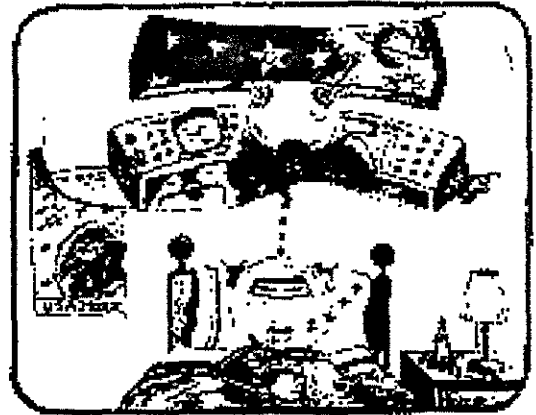
reading adventure where puzzles, maps, games, cut-outs and even a Scratch and Sniff await their discovery. It's the only personalized book of its kind available today. A great idea for a car trip. (Best for children over 7 years old.)

Books for GrownUps - A special birthday book, Wedding, Retirement, Graduation, Golf, and Baseball books.

Music Cassettes, Toys, Other Items

Maintained by Oasis Telecommunications.

Sandi Riley had a dream. Only Dr. Bowman and Sarah knew about this special dream. Today, she wanted to be the commander and pilot of her own space shuttle so they could fly to other planets not yet discovered.



Next page



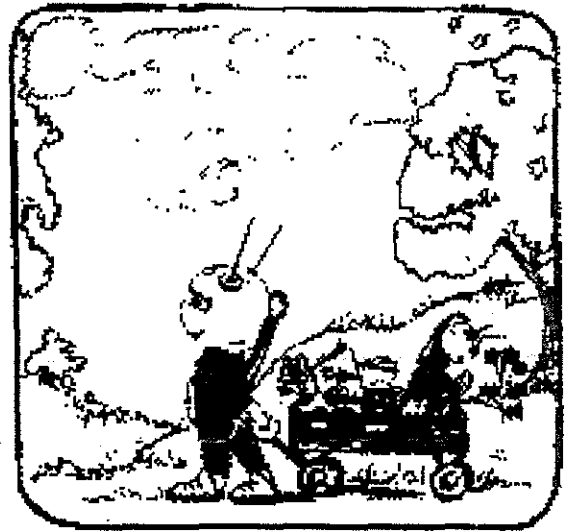


Sandi supervised the building of their space machine in her backyard in Ellensburg. Once their cardboard shuttle was completed, they suited up. Dr. Bowman and Sarah, along with Sandi, felt like real space astronauts, even though they realized they were just pretending.

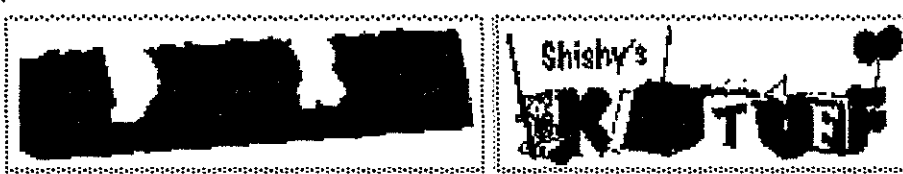
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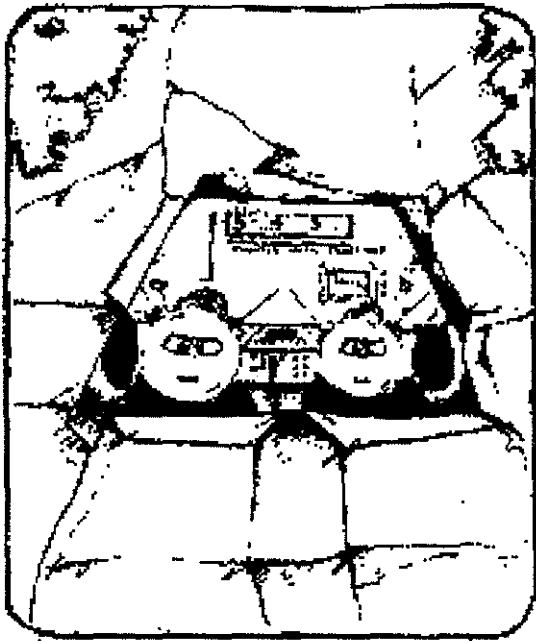


Sandi and her crew members wanted to carry gifts to children on other planets. They knew that would be very exciting. Dr. Bowman and Sarah used the wagons to gather gifts of flowers, toys, books and many other nice things while Sandi was busy finding room for them inside the shuttle.



Next page





Sandi carefully planned the route as Dr. Bowman and Sarah finished up the last-minute details for their "make-believe" trip. It was "T" minus five minutes until BLAST-OFF when they decided everything in the cockpit was in order.

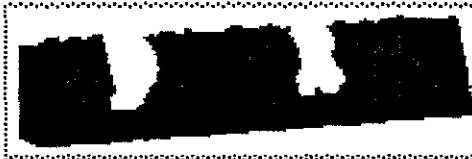
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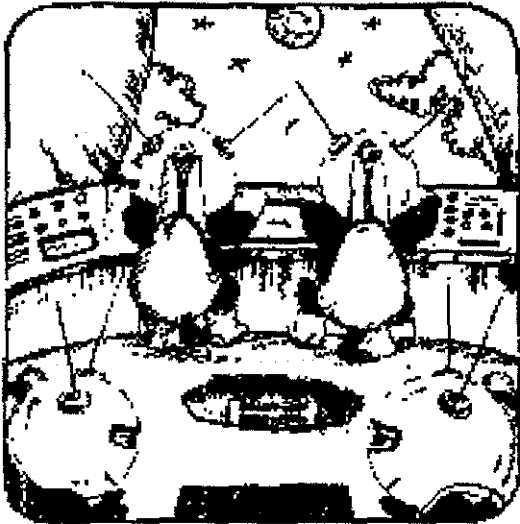


Sandi directed the loading of all the gifts onto the space shuttle. She also made sure plenty of peanut butter and jelly sandwiches were packed for their space food. Then Dr. Bowman and Sarah climbed aboard knowing they were ready for anything.



Next page





Sandi announced, "All systems are go! Is everyone strapped in and ready for the countdown?"

"10... 9... 8... Will we break the sound barrier?"

7... 6... 5... Will we be back before dinner?"

4... 3... 2... 1... **BLAST-OFF!**"

Next page

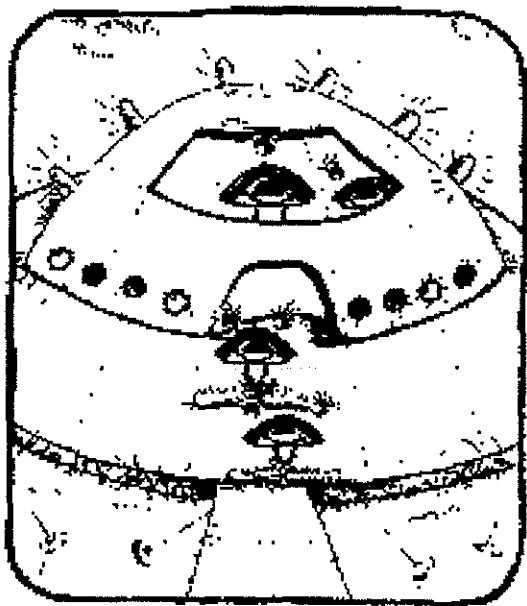


"Wait a minute!" shouted Sandi: "Where are all those blinking lights coming from?" Sandi quickly looked out her window. "Wow!" She would not have believed it if she had not seen it with her own eyes. A real spaceship was landing beside their cardboard space shuttle.



Next page



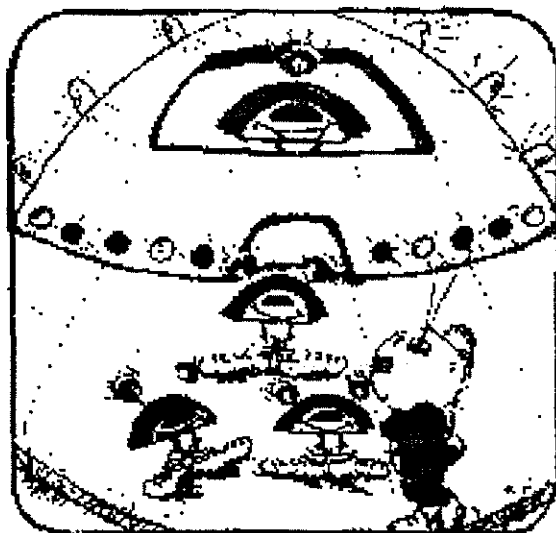


Was this a dream? Sandi could see many rainbow-colored space people walking toward her spacecraft. These space people appeared to be friendly because they were all smiling sweetly at Sandi, Dr. Bowman and Sarah. That made them want to smile back.

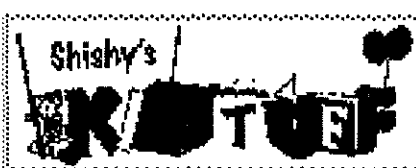
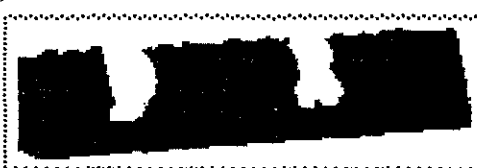
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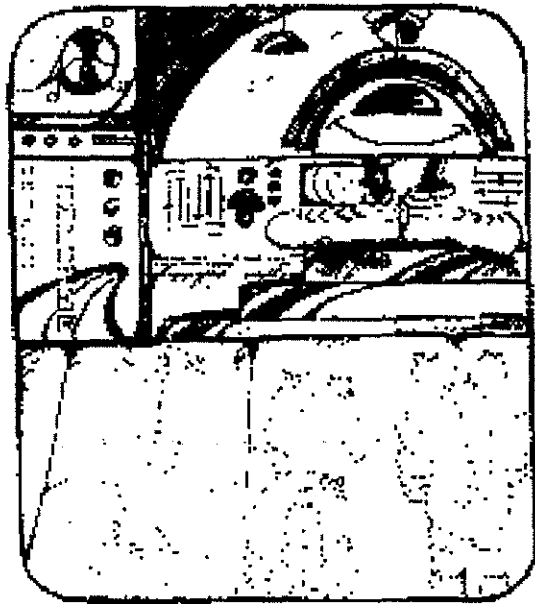


Sandi Riley, we have been watching you for a long time now. We are very pleased that you are generous enough to want to share your gifts with children on other planets. You and your friends are invited to come with us now and meet the children on our Planet Love."



Next page





Sandi quickly wrote a note explaining where they were going. Then all of a sudden, they were beamed into the beautiful space vehicle. As they walked inside, they could see the controls and cockpit of this real space shuttle. There was even a computer on board with lights that blinked and flashed.

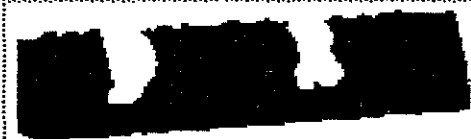
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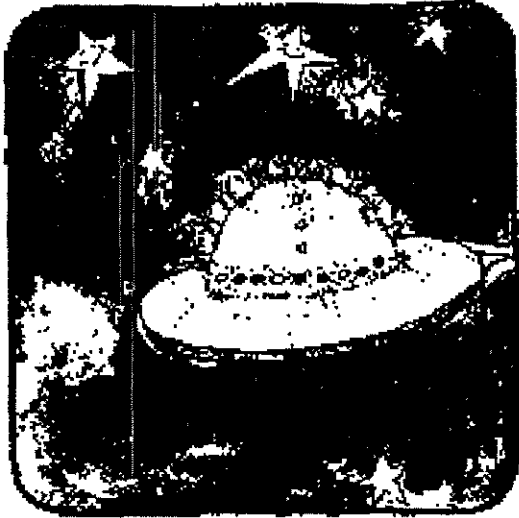


The kind commander asked Sandi if she would like to sit in the command seat and fly the space craft to the Planet Love. "Oh! Dr. Bowman and Sarah, my dream is really coming true!" laughed Sandi.



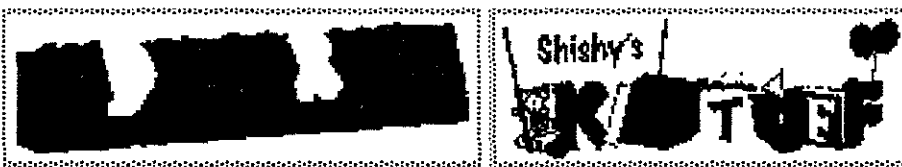
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The spaceship soared into outer space at a speed of Mach three. "That means we are going three times faster than the speed of sound," explained the wise commander. Sandi asked millions of questions and decided space travel was truly fascinating.

Next page



Through the window, everyone on board could see bright lights ahead. It looked like a rainbow path leading to a rainbow-colored planet. Sandi told Dr. Bowman and Sarah that it had to be the Planet Love. They all got ready to disembark!



Next page





The children of Planet Love were thrilled to see the people from the Planet Earth. They told Sandi that they loved the flowers, games and other gifts, but their favorite gifts were definitely the personalized books. Everybody laughed and had so much fun learning about each other.

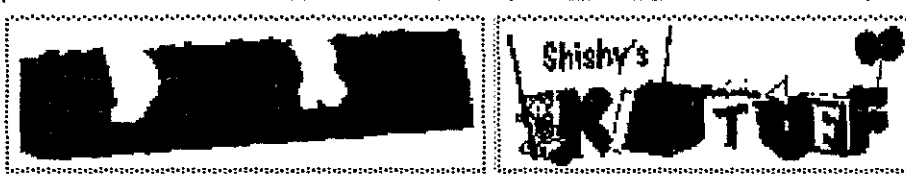
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Dr. Bowman and Sarah told Sandi it would be fabulous if they could bring the joy and happiness from Planet Love back to Ellensburg. But then, all too soon, in a big flash of bright, blue lights, they were beamed back to Earth.



Next page





Sandi anxiously asked, "Was it just a dream?" Then Sandi looked at Dr. Bowman and Sarah in disbelief and amazement. They were both wearing a rainbow-colored outfit. They all smiled at the same time. There really was a Planet Love! Mission complete!



Two Stick Kite

Topic: Kites

Materials: Plastic sheet, flexible sticks, kite string, measuring tape, pencil, glue, knife, scissors, and old rags.

Objective/Outcome: To construct a kite using a picture and learn to fly it.

Technology Adaptation: The Internet site is called Big Winds Kite Factory. This site offers a neat way to make a kite. It also has a link to the factory homepage where students will see pictures and descriptions of different types of kites.

Teacher Procedures

- The sticks form a cross and each stick needs a notch in the end of each side.
- Use string to reinforce the center and the edges to form the edge of the kite.
- Cut the material to fit the kite and notch where sticks will attach.
- Make a bridle out of kite string and tail out of fabric and attach it as indicated in the pictures.

Student Performance

- Follow teacher instructions by watching the demonstration of making the kite.
- Make and decorate kite.
- Ask questions to gain understanding about proper construction of kite
- Try to fly kite.

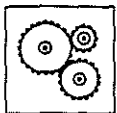
Benchmarks:

- Essential Learning for Communication #3
Checks for understanding by asking questions and paraphrasing
- Essential Learning for Communication #2
To observe and listen in order to gain and interpret information

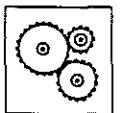
Adapted from: Bosak, Susan. Science Is...A source book of fascinating facts, projects and activities. Scholastic Publishing Co.

TWO-STICK KITE

ONE LEADS TO ANOTHER



488





Big Wind Kite Factory, Moloka'i, Hawai'i presents:

20 Kids * 20 Kites * 20 Minutes

Uncle Jonathan's easiest classroom kites ever.

For over 15 years the Big Wind Kite Factory has been giving kite making classes for the children on the island of Moloka'i in Hawai'i. These are the complete time tested instructions to get 20 kids making their own kites and flying them in 20 minutes.

Material list:

- 20 sheets of brightly colored 8 1/2" x 11" typing paper.
- 20 8" bamboo bar-b-que shishkabab sticks.
- 1 roll of florescent surveyor's flagging plastic tape. Available at any hardware store. A plastic bag cut in a 1" wide spiral all around will also make a great tail.
- 1 roll 1/2" wide masking tape or any type of plastic tape..
- 1 roll of string. (At least 200', 6 to 10 feet for each child.)
- 20 pieces of 1"x 3" cardboard on which to wind the string.
- Scissors.
- Hole punch. (optional)

Directions:

1. Fold a sheet of 8 1/2" x 11" paper in half to 8 1/2" x 5 1/2".
2. Fold again along the diagonal line A in Fig.2.
3. Fold back one side forming kite shape in Fig.3 and place tape firmly along fold line AB.(No stick is needed here because the fold stiffens the paper and acts like a spine.)
4. Place bar-b-que stick from point C to D and tape it down firmly.
5. Cut off 6 to 10 feet of plastic ribbon and tape it to the bottom of the kite at B.
6. Flip kite over onto its back and fold the front flap back and forth until it stands straight up.(Otherwise it acts like a rudder and the kite spins around in circles.)
7. Punch a hole in the flap at E, about 1/3 down from the top point A.
8. Tie one end of the string to the hole and wind the other end onto the cardboard string winder.

FIG.1

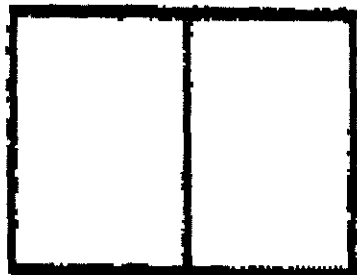


FIG.2

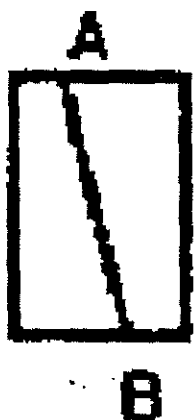
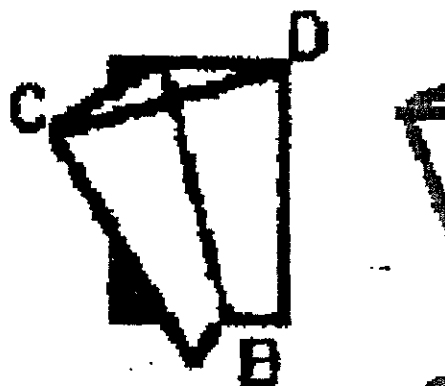


FIG.3



FIG.4



When you are in Hawai'i please be sure and drop in for one of our factory tours. There's one starting in about 3 minutes.

Our email address is bigwind@aloha.net> [Email](#) us your comments or requests for additional information

p.s. We offer free flying lessons daily.

No strings attached.



[Return](#) to Big Wind Kite Factory Homepage.

Blooming Ideas

Topic: Plants

Materials: The Tiny Seed by Eric Carle. Patterns of flowers, pictures of flowers, fresh flowers, pencils, scissors.

Objective/Outcome: The student will discuss with a partner the similarities between the growing seed in the story and themselves. Students will write a story about their seeds growing in the classroom.

Technology Adaptation: The Internet site that supports this lesson is School Gardens. The student will use this site to explore many sites about gardening, dirt and other related items.

Teacher Procedures

- Show many different pictures of flowers, discuss characteristics of each one.
- Guide students to discover what flower best represents themselves.
- Have students water the seeds they are growing.

Student Performance

- Pick a partner and talk about the differences in the flowers.
- Students will complete the phrase "I am like _____ because _____." They choose the flower with help if necessary and the pattern and create the flower.
- The students will observe the planted seeds from a previous lesson to see if they are changing.

Extensions: Students can create a construction paper flower using crayons and scissors. Display their thoughts and creations on the bulletin board.

If flowers aren't good use a car, boat, plane or train.

Benchmarks:

- Essential Learning for Communication #2
To observe and listen to gain and interpret information
- Essential Learning for Communication #1
Uses appropriate style: Voice

Adapted from: MacKenthun, Carole. Primary Language Arts Teaching and Learning Company.

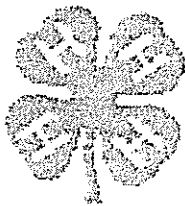


School Gardens

In some schools, gardens are being integrated into the educational curriculum to teach children not only about plants, nature, and the outdoors, but other subjects as well. Gardens can teach children about history, economics, poetry, and math, but are still primarily

used for science studies. If you'd like to visit a school garden, try Lord Roberts Elementary School. Teachers who need ideas may want to base the school garden on a theme, concept, or topic for teaching children ideas in a particular area.

The Texas Agricultural Extension Agency has developed a full curriculum of activities for youngsters in grades Kindergarten through Second called Plant Pals. A section of this 4-H Horticulture Guide is listed here. The guide focuses on how plants interact with the environment. Therefore, it not only has activities with plants, but has activities that introduce children to water, air, and soil also.



- Where does soil come from?
- The same ole water
- What travels in air?
- On the way down
- Cylinder Gardening Project
- A story about Sammy D.--the plant from Mars
- Plant growth--tropisms
- Give me light, give me life
- Making mud pies
- Plant needs-air, water, and light
- Plants and water
- Terrarium
- Plant a tree



Gardens are a fun way to expand curriculums and gain student interest, but can take a lot of responsibility. Before deciding to jump into a school garden project one should first consider the following: school garden considerations. If you still feel that your school would be an

ideal site for a garden, check out the step by step guide to starting a school garden. The National Gardening Association has a wonderful site full of information related to Kids & Classrooms.

The Texas Agricultural Extension Agency has developed a school gardening curriculum that uses 5-gallon plastic buckets cut in half as the gardening containers for the children. This ***cylinder gardening program is simple, and fairly inexpensive.

A garden program does not necessarily have to start out using any outdoor land. Garden programs can be started right in the classroom on windowsill, cabinet, or table near a window or artificial light source. A good example of a small scale garden and some of the experiments that can go on is in the growing science center.



There are various books available that include articles and children's activities that would be ideal for school gardening programs. There are also resources available if you write or call institutions and request information. For more resources and information about school gardens in Canada, look at the the City Farmer Homepage.

Other fun activities from all around the world include:

Ethanol Experiment with Corn
Nutrition Analysis Activity
Global Warming Project
Making Rain From a Plant
Osmosis Experiment with a Potato
Do Plants Really Drink Water?

A wetlands curriculum is also available for middle or junior high schoolers.

Activities concerning solid waste are available for all age levels including

Kindergarten-3,
grades 4-6,
grades 7-8, and,
high schoolers.

There are many nutritional benefits and educational benefits. Benefits to children are ongoing, even into the secondary levels of education, therefore high school garden areas should not be forgotten in education also. Take the children in your classroom to visit children in various climates and regions throughout the world.

Visit schools in the

[desert](#)
[grasslands](#)
[tundra](#)
[taiga](#)
[rainforest](#)
[temperate deciduous forest](#)



If your own school garden is out of the question, you could still visit someone else's garden. Some [botanical gardens](#) have specific programs that are developed especially for schools or children.

[[Home](#) | [community gardens](#) | [botanical gardens](#) | [fun page](#) | [author](#)]

Letter of The Week

Topic: Letters of Alphabet

Materials: Magazines, shoe boxes, clay, shapes, patterns, tagboard, letter cookie cutters, string, sandpaper, scissors, glue.

Objective/Outcome: Students will recognize the letters of the alphabet during the course of a twenty-six week period.

Technology Adaptation: The Internet site is called ABC Educational Games. This site offers a game for the students to play to help with letter recognition. Another site is the Children's Television Workshop, a link where students can color letters of the alphabet. The last site is the Grandad's Animal Alphabet Book in which students can see pictures of animals and recognize letters the words begin with.

Teacher Procedures

- Send a letter home explaining that the students need a lunch box or shoe box and their help to complete this activity every week.
- Encourage the parents to help the children fill the lunch box with items that begin with the letter. e.g., A = Apple, Air.
- Class is creating an alphabet book page by page using examples the students bring from home.

Student Performance

- Each student will create a page for each letter of the alphabet to place in the alphabet book.
- Students will volunteer to share their boxes from home during the course of the week.

Benchmarks:

- Essential Learning for Communication #2
To observe and listen to gain and interpret information
- Essential Learning for Communication #1
Use word identification and word meaning strategies

Adapted from: MacKenthun, Carole. Primary Language Arts Teaching and Learning Company.

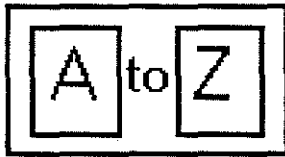


Learn Your Alphabet

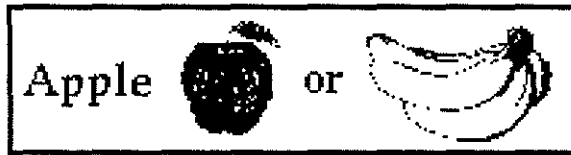
Choose one of these great games for children ages 3 - 8:



Start with Words and Pictures



Then try Pick a Letter



Kids will then want to Start Reading!

NEW For numbers, Start Counting!

For Parents

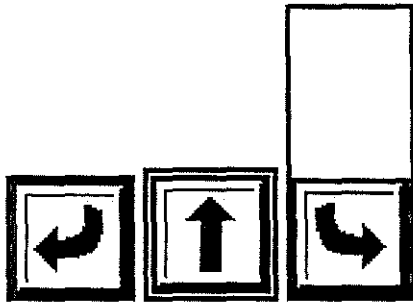
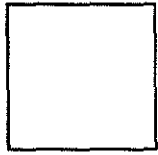
A note to parents.

Thought for 5/17/95: "Faults are thick where love is thin."

Send comments to msb@klsc.com

1

One Blue Square



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[Click here to see more.](#)

**Grandad's
Animal Alphabet
Book**

From  Antelope

by
Thomas Parker Wright
©1995 University of Hawaii

To  Zebra

For Amanda, Dana, Devin, Elizabeth, Ellen, Ian, Jennifer, Lauren, Megan, Milena, Morgan, Ryan, Sean, Tracey, Vanessa, Walker and the next generation (Zachary).

PAGES TO READ

About the book.

Animal Alphabet

Animal Quiz

Classifying Animals by their eating habits.

Facts about birds.

Fishy Facts.

Some Unusual Creatures.

A Motley Menagerie.

A Vocabulary List.

Self Test I

Teddy Bear Jumps Rope Jingle

Topic: Bears and rhyming

Materials: jump ropes, teddy bears, graph paper, teacher-made chart or big book of chant "Teddy Bear, Teddy Bear."

Objective/Outcome: Students will learn and sing the Teddy Bear Chant.

Technology Adaption: The Internet site for this lesson is the Cub Den. This site has many facts about bears that students can use to learn more about bears. This site has a link to a list of books about bears. Another site is Kody's Home Page. This is a cute place for kids to learn about Koala bears. The third site is Mr. Bear's Birthday Page. This site is a story about a bear and his friends.

Teacher Procedures

- With students, read through the Teddy Bear chant
- Talk through the chant until the students have it memorized
- Give jump ropes to students while outside or in the gym. Students can sing the bear chant while they jump rope.

Student Performance

- Learn the Teddy Bear chant
- Jump rope
- Tell what they learned at the end of the activity

Extensions: Use the song "Mary Had a Little Lamb" and replace little lamb with Teddy Bear. Then use its brown and furry all over instead of its fleece as white as snow.

Benchmarks:

- Essential Learning for Communication #1
Focuses Attention
- Essential Learning for Communication #2
Uses Effective Delivery

Adapted from: MacKenthun, Carole. Primary Language Arts Teaching and Learning Company.

1. **Teddy Bear Jump Rope Jingle**



THE CUB DEN

<http://www2.portage.net/~dmiddlet/bears/cubden.html> THE CUB DEN - sponsored by "THE BEAR DEN"

<http://www2.portage.net/~dmiddlet/bears/cubden.html>

THE CUB DEN - sponsored by "THE BEAR DEN"

to Don Middleton, dmiddlet@portage.net. Students are always welcome!

Your ideas can only make The Cub Den and THE BEAR DEN better. Also, feel free to put a link to THE BEAR DEN on your own homepage or hotlist.

And ... , please read some comments from other children and students to The Cub Den and The Bear Den.

Both The Cub Den and The Bear Den come to you through the free and gracious support of The Portage Internet Connection, my internet service provider. If you like what you see on The Bear Den, send them a thank-you note.

"The Cub Den" © and "The Bear Den" ©, 1996
are copyrighted creations of
Don Middleton

<http://www2.portage.net/~dmiddlet/bears/cubden.html>



Hi! My name is Kody and I'm a Smoky Mountain Black Bear.

I'm inviting you to join me on "Kody's Home" Page. It is packed full of games, info, and stories. You will be able to share all of my adventures as I roam the mountains and valleys of the Smokies. You'll meet my family and all of my forest friends and get to hear about our lives in these Great Smoky Mountains of East Tennessee and North Carolina.



We'll visit the mountain people (from a safe distance, of course) and watch them as they go about their daily lives. We'll find out how they make musical instruments, mountain crafts, toys, soap and all kinds of neat stuff I bet you never knew existed! We'll get the people to share stories they told and games they played before the days of radios, TVs or even computers.

We'll learn interesting and unusual facts about the creatures, insects and the plants of the forest. There will be writing and drawing contests where **YOU** might see your work here on "Kody's Home" Page. There is even a pen pal club where you can write to other kids who share the same interest. My friends and I are really excited about the fun we are going to have together.



I think I hear my mother calling. I better get home. Enjoy your adventure in the Smoky Mountains and remember to visit me often. I have new adventures all the time. Oh, yea, don't forget to tell all your friends about "Kody's Home" Page.

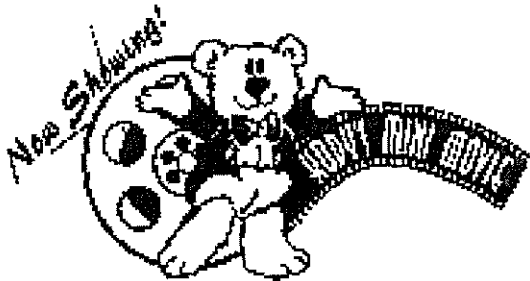
your pal,

Kody



Help Kody through some tight spots if you are brave enough!

- Fun things to do in the car
 - Watch Out!
 - Did you know...
 - Hopping good dot to dot
 - Visit some places Kody likes to visit
-



Kody says hello to you and gets a surprise! (300k Quicktime movie)

Kody has had **00742** visitors since Jan. 1, 1996.

Alex's Scribbles - Koala trouble

Pictures and idea: Alexander Balson - 5 years old

Story line: Scott Balson - Dad
Short stories for kids of ALL ages.

© Alex and Scott Balson - 1996.

© Alex and Scott Balson - 1996.

global@gwb.com.au

A niche market development by [The Definitive Lifestyle Guide to Australian Webs](#)

Mr. Bear's Birthday Page

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Return to Index: [POTPOURRI](#) or [Lynn's Index Page](#)
Return to [World Wide Kids](#), 'Welcome Aboard!'

[http://pages.prodigy.com/U/S/A/USFY50A/party2.
htm](http://pages.prodigy.com/U/S/A/USFY50A/party2.htm)

Mr. Bear's Birthday Book



[http://pages.prodigy.com/U/S/A/USFY50A/party2.
htm](http://pages.prodigy.com/U/S/A/USFY50A/party2.htm)

Mr. Bear's Birthday Book

<http://pages.prodigy.com/U/S/A/USFY50A/party2.htm>

Mr. Bear's Birthday Book

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Send comments to
Lynn Dever at usfy50a@prodigy.com
Return to [Page 1, Mr. Bear's Birthday](#)

Colors of the Week

Topic: Colors

Materials: books about colors, sponges, tempera paint, apples, art paper, cutting board, brayer, eggs (hard boiled), pudding, flavored gelatin, construction paper, string, green cotton balls, film canisters, craft eyes.

Objective/Outcome: Students will recognize the color of the week.

Technology Adaption: The Internet site students could explore is Sugar Bush Kids Stories, Changing Colours. This site is good because students will view spelling of the words as they appear in the color.

Teacher Procedures

- Read a story about the color of the week
- Friday have students wear the color of the week.
- Set up stations where students will paint.
- Make sure the colors are spelled out in the classroom on the bulletin board.

Student Performance

- Paint with sponges creating things that are the color of the week.
- Find items that are the color and count them.
- Communicate to the class three different places where the color appears.
- Wear the color of the week on Friday.

Extensions:

Have students make a mobile of things that are the same colors.
Make a classroom chart of favorite colors.

Benchmarks:

- Essential Learning for Communication #2
Communicates to range of audiences for variety of purposes
- Essential Learning for Reading #1
Uses word identification and word meaning strategies

Adapted from: MacKenthun, Carole. Primary Language Arts Teaching and Learning Company.

Sugar Bush Kids Stories:

Changing Colours

Written by Dianne Lemire,
Graphics by Liz Wichman ©Copyright 1995

Lasted Updated: October 9, 1995

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Chapter V

Summary

The intent of this project was to adapt curriculum activities that integrate multimedia technology activities for kids age five through seven. This project provides a resource of activities using the Internet for early childhood educators wishing to make their classroom environment a place where students utilize the power of technology. To accomplish this purpose, analysis of current research and literature relevant to the integration of multimedia technology to assist in instruction was completed.

To keep up with rapidly changing technologies, teachers need ongoing training to keep abreast of current innovations. School Districts need to take a role in providing in service opportunities for staff development with regards to technology and how it fits into the curriculum. The technology plan for the state of Washington has twelve recommendations which should be addressed to help the statewide educational system become a technological learning environment (See Appendix C).

Conclusions

Conclusions reached as a result of this project were:

1. Implementing technology into the curriculum takes time and money for training.

2. Educational Reform plays a critical role for the future of technology in classrooms around the state.
3. Educational systems and roles in that system are changing rapidly. To keep up with that change it is necessary to provide time and money for staff training with the use of technology. As well as the encouragement of pilot programs throughout the state.
4. Technology is a natural motivator and should be utilized as a tool in education to help students reach their potential.

Recommendations

1. Each Administrative team should make it their responsibility and priority to facilitate grant writing to ascertain money for the purchase of technology for the schools and specific training of curriculum adaptation.
2. Educational Reform paves the way for technologies entry way into the curriculum. Administrators should recognize the need for feedback and revision of technology plan already in place and the needs for the future, short term and long term.
3. Teachers should be responsible for updating curriculum and methods of instruction.
4. Administrators should provide technology in every learning environment throughout the school in which they work.

4:23 PM



CERTIFICATION OF ENROLLMENT

ENGROSSED SUBSTITUTE HOUSE BILL 1209

Chapter 336, Laws of 1993

53rd Legislature
1993 Regular Session

EFFECTIVE DATE: July 25, 1993

Passed by the House April 25, 1993
Yeas 81 Nays 17

Speaker of the
House of Representatives

Passed by the Senate April 24, 1993
Yeas 26 Nays 18

President of the Senate

Approved May 12, 1993

Governor of the State of Washington

CERTIFICATE

I, Alan Thompson, Chief Clerk of the House of Representatives of the State of Washington, do hereby certify that the attached is ENGROSSED SUBSTITUTE HOUSE BILL 1209 as passed by the House of Representatives and the Senate on the dates hereon set forth.

Chief Clerk

FILED
FILED

MAY 12 1993

SECRETARY OF STATE
STATE OF WASHINGTON

4:23 pm.

Secretary of State
State of Washington

ENGROSSED SUBSTITUTE HOUSE BILL 1209

AS RECOMMENDED BY THE CONFERENCE COMMITTEE

Passed Legislature - 1993 Regular Session

State of Washington 53rd Legislature 1993 Regular Session

By House Committee on Education (originally sponsored by Representatives Peery, Ballard, Dorn, Jones, Brough, R. Meyers, Cothorn, Sheldon, Brumsickle, Roland, Eide, Holm, Jacobsen, Thomas, J. Kohl, Ogden, Franklin, G. Cole, Veloria, Wang, H. Myers, Horn, Scott, Karahalios, L. Johnson, Thibaudeau, Wolfe, Leonard, Locke, Basich, Orr, Kessler, Campbell, Linville, Pruitt and Wineberry; by request of Council on Education Reform and Funding)

Read first time 03/01/93.

1 AN ACT Relating to education; amending RCW 28A.150.210,
2 28A.630.885, 28A.415.250, 28A.405.140, 28A.300.130, 28A.630.878,
3 28A.410.030, 28A.225.220, 28A.195.010, and 28A.200.010; amending 1992
4 c 141 s 509 (uncodified); adding new sections to chapter 28A.630 RCW;
5 adding a new section to chapter 28A.320 RCW; adding a new section to
6 chapter 28A.305 RCW; adding a new section to chapter 28A.415 RCW;
7 adding new sections to chapter 28A.405 RCW; adding new sections to
8 chapter 28A.300 RCW; adding a new section to chapter 28A.310 RCW;
9 adding a new section to chapter 70.190 RCW; adding a new chapter to
10 Title 28A RCW; creating new sections; repealing RCW 28A.630.884;
11 repealing 1992 c 141 s 505; repealing 1992 c 141-s 501; providing an
12 effective date; and providing expiration dates.

13 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

14 NEW SECTION. Sec. 1. The legislature finds that student
15 achievement in Washington must be improved to keep pace with societal
16 changes, changes in the workplace, and an increasingly competitive
17 international economy.

18 To increase student achievement, the legislature finds that the
19 state of Washington needs to develop a public school system that

1 focuses more on the educational performance of students, that includes
2 high expectations for all students, and that provides more flexibility
3 for school boards and educators in how instruction is provided.

4 The legislature further finds that improving student achievement
5 will require:

6 (1) Establishing what is expected of students, with standards set
7 at internationally competitive levels;

8 (2) Parents to be primary partners in the education of their
9 children, and to play a significantly greater role in local school
10 decision making;

11 (3) Students taking more responsibility for their education;

12 (4) Time and resources for educators to collaboratively develop and
13 implement strategies for improved student learning;

14 (5) Making instructional programs more relevant to students' future
15 plans;

16 (6) All parties responsible for education to focus more on what is
17 best for students; and

18 (7) An educational environment that fosters mutually respectful
19 interactions in an atmosphere of collaboration and cooperation.

20 It is the intent of the legislature to provide students the
21 opportunity to achieve at significantly higher levels, and to provide
22 alternative or additional instructional opportunities to help students
23 who are having difficulty meeting the essential academic learning
24 requirements in RCW 28A.630.885.

25 It is also the intent of the legislature that students who have met
26 or exceeded the essential academic learning requirements be provided
27 with alternative or additional instructional opportunities to help
28 advance their educational experience.

29 The provisions of chapter . . . , Laws of 1993 (this act) shall not
30 be construed to change current state requirements for students who
31 receive home-based instruction under chapter 28A.200 RCW, or for
32 students who attend state-approved private schools under chapter
33 28A.195 RCW.

34 PART I

35 STUDENT LEARNING GOALS

36 Sec. 101. RCW 28A.150.210 and 1977 ex.s. c 359 s 2 are each
37 amended to read as follows:

1 The goal of the Basic Education Act for the schools of the state of
2 Washington set forth in this (~~(1977 amendatory act)~~) chapter shall be
3 to provide students with the opportunity to (~~achieve these skills~~)
4 ~~which are generally recognized as requisite to learning. These skills~~
5 ~~shall include the ability:~~

6 ~~(1) To distinguish, interpret and make use of words, numbers and~~
7 ~~other symbols, including sound, colors, shapes and textures;~~

8 ~~(2) To organize words and other symbols into acceptable verbal and~~
9 ~~nonverbal forms of expression, and numbers into their appropriate~~
10 ~~functions;~~

11 ~~(3) To perform intellectual functions such as problem solving,~~
12 ~~decision making, goal setting, selecting, planning, predicting,~~
13 ~~experimenting, ordering and evaluating; and~~

14 ~~(4) To use various muscles necessary for coordinating physical and~~
15 ~~mental functions)) become responsible citizens, to contribute to their~~
16 own economic well-being and to that of their families and communities,
17 and to enjoy productive and satisfying lives. To these ends, the goals
18 of each school district, with the involvement of parents and community
19 members, shall be to provide opportunities for all students to develop
20 the knowledge and skills essential to:

21 (1) Read with comprehension, write with skill, and communicate
22 effectively and responsibly in a variety of ways and settings;

23 (2) Know and apply the core concepts and principles of mathematics;
24 social, physical, and life sciences; civics and history; geography;
25 arts; and health and fitness;

26 (3) Think analytically, logically, and creatively, and to integrate
27 experience and knowledge to form reasoned judgments and solve problems;
28 and

29 (4) Understand the importance of work and how performance, effort,
30 and decisions directly affect future career and educational
31 opportunities.

32 NEW SECTION. Sec. 102. Section 101 of this act shall take effect
33 September 1, 1994.

34 PART II

35 COMMISSION ON STUDENT LEARNING

1 NEW SECTION. Sec. 201. A new section is added to chapter 28A.630
2 RCW to read as follows:

3 Unless the context clearly requires otherwise, the definitions in
4 this section apply throughout RCW 28A.630.885 and 28A.300.130.

5 (1) "Commission" means the commission on student learning created
6 in RCW 28A:630.885. *

7 (2) "Student learning goals" mean the goals established in RCW
8 28A.150.210.

9 (3) "Essential academic learning requirements" means more specific
10 academic and technical skills and knowledge, based on the student
11 learning goals; as determined under RCW 28A.630.885(3)(a). Essential
12 academic learning requirements shall not limit the instructional
13 strategies used by schools or school districts or require the use of
14 specific curriculum.

15 (4) "Performance standards" or "standards" means the criteria used
16 to determine if a student has successfully learned the specific
17 knowledge or skill being assessed as determined under RCW
18 28A.630.885(3)(b). The standards should be set at internationally
19 competitive levels.

20 (5) "Assessment system" or "student assessment system" means a
21 series of assessments used to determine if students have successfully
22 learned the essential academic learning requirements. The assessment
23 system shall be developed under RCW 28A.630.885(3)(b).

24 (6) "Performance-based education system" means an education system
25 in which a significantly greater emphasis is placed on how well
26 students are learning, and significantly less emphasis is placed on
27 state-level laws and rules that dictate how instruction is to be
28 provided. The performance-based education system does not require that
29 schools use an outcome-based instructional model. Decisions regarding
30 how instruction is provided are to be made, to the greatest extent
31 possible, by schools and school districts, not by the state.

32 Sec. 202. RCW 28A.630.885 and 1992 c 141 s 202 are each amended to
33 read as follows:

34 ~~((+2+))~~ (1) The Washington commission on student learning is hereby
35 established. The primary purposes of the commission are to identify
36 ~~((what))~~ the knowledge and skills all public school students need to
37 know and be able to do based on the student learning goals ~~((of the~~
38 ~~governor's council on education reform and funding))~~ in RCW

1 28A.150.210, to develop student assessment and school accountability
2 systems, and to take other steps necessary to develop a performance-
3 based education system. The commission shall include three members of
4 the state board of education, three members appointed by the governor
5 before July 1, 1992, and ~~((three))~~ five members appointed no later than
6 ~~((February))~~ June 1, 1993, by the governor elected in the November 1992
7 election. The governor shall appoint a chair from the commission
8 members, and fill any vacancies in gubernatorial appointments that may
9 occur. The state board of education shall fill any vacancies of state
10 board of education appointments that may occur. In making the
11 appointments, educators, business leaders, and parents shall be
12 represented, and nominations from state-wide education, business, and
13 parent organizations shall be requested. Efforts shall be made to
14 ensure that the commission reflects the ~~((cultural))~~ racial and ethnic
15 diversity of the state's K-12 student population and that the major
16 geographic regions in the state are represented. Appointees shall be
17 qualified individuals who are supportive of educational restructuring,
18 who have a positive record of service, and who will devote sufficient
19 time to the responsibilities of the commission to ensure that the
20 objectives of the commission are achieved.

21 ~~((3)) The commission shall begin its substantive work subject to~~
22 ~~subsection (1) of this section.~~

23 ~~(4))~~ (2) The commission shall establish ~~((technical))~~ advisory
24 committees. Membership of the ~~((technical))~~ advisory committees shall
25 include, but not necessarily be limited to, professionals from the
26 office of the superintendent of public instruction and the state board
27 of education, and other state and local educational practitioners and
28 student assessment specialists.

29 ~~((5))~~ (3) The commission, with the assistance of the
30 ~~((technical))~~ advisory committees, shall:

31 (a) ~~((Identify what all elementary and secondary students need to~~
32 ~~know and be able to do. At a minimum, these))~~ Develop essential
33 academic learning requirements ~~((shall include reading, writing,~~
34 ~~speaking, science, history, geography, mathematics, and critical~~
35 ~~thinking. In developing these essential academic learning~~
36 ~~requirements, the commission shall incorporate))~~ based on the student
37 learning goals ~~((identified by the council on education reform and~~
38 ~~funding))~~ in RCW 28A.150.210. Essential academic learning requirements
39 shall be developed, to the extent possible, for each of the student

1 learning goals in RCW 28A.150.210. Goals one and two shall be
2 considered primary. Essential academic learning requirements for RCW
3 28A.150.210(1), goal one, and the mathematics component of RCW
4 28A.150.210(2), goal two, shall be completed no later than March 1,
5 1995. Essential academic learning requirements that incorporate the
6 remainder of RCW 28A.150.210 (2), (3), and (4), goals two, three, and
7 four, shall be completed no later than March 1, 1996. To the maximum
8 extent possible, the commission shall integrate goal four and the
9 knowledge and skill areas in the other goals in the development of the
10 essential academic learning requirements;

11 (b) (~~By December 1, 1995,~~) (i) The commission shall present to
12 the state board of education and superintendent of public instruction
13 a state-wide academic assessment system for use in the elementary
14 ((grades)), middle, and high school years designed to determine if each
15 student has mastered the essential academic learning requirements
16 identified in (a) of this subsection. The academic assessment system
17 shall include a variety of ((methodologies)) assessment methods,
18 including performance-based measures that are criterion-referenced.
19 Performance standards for determining if a student has successfully
20 completed an assessment shall be initially determined by the commission
21 in consultation with the advisory committees required in subsection (2)
22 of this section.

23 (ii) The assessment system shall be designed so that the results
24 under the assessment system are used by educators as tools to evaluate
25 instructional practices, and to initiate appropriate educational
26 support for students who ((do)) have not ((master)) mastered the
27 essential academic learning requirements at the appropriate periods in
28 the student's educational development. ((Mastery of each component of
29 the essential academic learning requirements shall be required before
30 students progress in subsequent components of the essential academic
31 learning requirements. The state board of education and superintendent
32 of public instruction shall implement the elementary academic
33 assessment system beginning in the 1996-97 school year, unless the
34 legislature takes action to delay or prevent implementation of the
35 assessment system and essential academic learning requirements.))

36 (iii) Assessments measuring the essential academic learning
37 requirements developed for RCW 28A.150.210(1), goal one, and the
38 mathematics component of RCW 28A.150.210(2), goal two, shall be
39 initially implemented by the state board of education and

1 superintendent of public instruction no later than the 1996-97 school
2 year, unless the legislature takes action to delay or prevent
3 implementation of the assessment system and essential academic learning
4 requirements. Assessments measuring the essential academic learning
5 requirements developed for RCW 28A.150.210 (2), (3), and (4), goals
6 two, three, and four, shall be initially implemented by the state board
7 of education and superintendent of public instruction no later than the
8 1997-98 school year, unless the legislature takes action to delay or
9 prevent implementation of the assessment system and essential academic
10 learning requirements. To the maximum extent possible, the commission
11 shall integrate knowledge and skill areas in development of the
12 assessments.

13 (iv) Before the 2000-2001 school year, participation by school
14 districts in the assessment system shall be optional. School districts
15 that desire to participate before the 2000-2001 school year shall
16 notify the superintendent of public instruction in a manner determined
17 by the superintendent. Beginning in the 2000-2001 school year, all
18 school districts shall be required to participate in the assessment
19 system.

20 (v) The state board of education and superintendent of public
21 instruction may modify the essential academic learning requirements and
22 academic assessment system, as needed, in subsequent school years.

23 (vi) The commission shall develop assessments that are directly
24 related to the essential academic learning requirements, and are not
25 biased toward persons with different learning styles, racial or ethnic
26 backgrounds, or on the basis of gender;

27 (c) (~~By December 1, 1996, present to the state board of education~~
28 ~~and superintendent of public instruction a state-wide academic~~
29 ~~assessment system for use in the secondary grades designed to determine~~
30 ~~if each student has mastered the essential academic learning~~
31 ~~requirements identified for secondary students in (a) of this~~
32 ~~subsection. The academic assessment system shall use a variety of~~
33 ~~methodologies, including performance based measures, to determine if~~
34 ~~students have mastered the essential academic learning requirements,~~
35 ~~and))~~ After a determination is made by the state board of education
36 that the high school assessment system has been implemented and that it
37 is sufficiently reliable and valid, successful completion of the high
38 school assessment shall lead to a certificate of mastery. The
39 certificate of mastery shall be obtained by most students at about the

1 age of sixteen, and is evidence that the student has successfully
2 mastered the essential academic learning requirements during his or her
3 educational career. The certificate of mastery shall be required for
4 graduation but shall not be the only requirement for graduation. ((The
5 ~~assessment system shall be designed so that the results are used by~~
6 ~~educators to evaluate instructional practices, and to initiate~~
7 ~~appropriate educational support for students who do not master the~~
8 ~~essential academic learning requirements.~~) The commission shall
9 ~~((recommend))~~ make recommendations to the state board of education
10 ~~((whether the certificate of mastery should take the place of the~~
11 ~~graduation requirements or be required for graduation in addition to~~
12 ~~graduation requirements. The state board of education and~~
13 ~~superintendent of public instruction shall implement the secondary~~
14 ~~academic assessment system beginning in the 1997-98 school year, unless~~
15 ~~the legislature takes action to delay or prevent implementation of the~~
16 ~~assessment system and essential academic learning requirements. The~~
17 ~~state board of education and superintendent of public instruction may~~
18 ~~modify the assessment system, as needed, in subsequent school years)).~~
19 regarding the relationship between the certificate of mastery and high
20 school graduation requirements. Upon achieving the certificate of
21 mastery, schools shall provide students with the opportunity to
22 continue to pursue career and educational objectives through
23 educational pathways that emphasize integration of academic and
24 vocational education. Educational pathways may include, but are not
25 limited to, programs such as work-based learning, school-to-work
26 transition, tech prep, vocational-technical education, running start,
27 and preparation for technical college, community college, or university
28 education;

29 (d) Consider methods to address the unique needs of special
30 education students when developing the assessments in (b) and (c) of
31 this subsection;

32 (e) ~~((Develop strategies that will assist educators in helping~~
33 ~~students master the essential academic learning requirements;~~

34 ~~(f) Establish a center the primary role of which is to plan,~~
35 ~~implement, and evaluate a high quality professional development~~
36 ~~process. The quality schools center shall: Have an advisory council~~
37 ~~composed of educators, parents, and community and business leaders; use~~
38 ~~best practices research regarding instruction, management, curriculum~~
39 ~~development, and assessment; coordinate its activities with the office~~

1 ~~of the superintendent of public instruction and the state board of~~
2 ~~education; employ and contract with individuals who have a commitment~~
3 ~~to quality reform; prepare a six year plan to be updated every two~~
4 ~~years; and be able to accept resources and funding from private and~~
5 ~~public sources;~~

6 ~~(g) Develop recommendations for the repeal or amendment of federal,~~
7 ~~state, and local laws, rules, budgetary language, regulations, and~~
8 ~~other factors that inhibit schools from adopting strategies designed to~~
9 ~~help students achieve the essential academic learning requirements;~~

10 ~~(h))~~ Consider methods to address the unique needs of highly
11 capable students when developing the assessments in (b) and (c) of this
12 subsection;

13 (f) Develop recommendations on the time, support, and resources,
14 including technical assistance, needed by schools and school districts
15 to help students achieve the essential academic learning requirements.
16 These recommendations shall include an estimate for the legislature,
17 superintendent of public instruction, and governor on the expected cost
18 of implementing the ~~((elementary and secondary))~~ academic assessment
19 system ~~((s during the 1995-97 biennium and beyond));~~

20 ~~((+i))~~ (g) Develop recommendations for consideration by the higher
21 education coordinating board for adopting college and university
22 entrance requirements for public school students that ~~((would assist~~
23 ~~schools in adopting strategies designed to help students achieve the~~
24 ~~essential learning requirements))~~ are consistent with the essential
25 academic learning requirements and the certificate of mastery;

26 ~~((+j))~~ (h) By December 1, ~~((1996))~~ 1998, recommend to the
27 legislature, governor, state board of education, and superintendent of
28 public instruction;

29 (i) A state-wide accountability system to monitor and evaluate
30 accurately and fairly the level of learning occurring in individual
31 schools and school districts. ~~((The commission also shall recommend to~~
32 ~~the legislature steps that should be taken to assist school districts~~
33 ~~and schools in which learning is significantly below expected levels of~~
34 ~~performance as measured by the academic assessment systems established~~
35 ~~under this section))~~ The accountability system shall be designed to
36 recognize the characteristics of the student population of schools and
37 school districts such as gender, race, ethnicity, socioeconomic status,
38 and other factors. The system shall include school-site, school
39 district, and state-level accountability reports;

1 (ii) A school assistance program to help schools and school
2 districts that are having difficulty helping students meet the
3 essential academic learning requirements;

4 (iii) A system to intervene in schools and school districts in
5 which significant numbers of students persistently fail to learn the
6 essential academic learning requirements; and

7 (iv) An awards program to provide incentives to school staff to
8 help their students learn the essential academic learning requirements,
9 with each school being assessed individually against its own baseline.
10 Incentives shall be based on the rate of percentage change of students
11 achieving the essential academic learning requirements. School staff
12 shall determine how the awards will be spent.

13 It is the intent of the legislature to begin implementation of
14 programs in this subsection (3)(h) on September 1, 2000;

15 ~~((k))~~ (i) Report annually by December 1st to the legislature, the
16 governor, the superintendent of public instruction, and the state board
17 of education on the progress, findings, and recommendations of the
18 commission; and

19 ~~((l) Complete other tasks, as appropriate)~~ (j) Make
20 recommendations to the legislature and take other actions necessary or
21 desirable to help students meet the student learning goals.

22 ~~((6))~~ (4) The commission shall coordinate its activities with the
23 state board of education and the office of the superintendent of public
24 instruction.

25 ~~((7))~~ (5) The commission shall seek advice broadly from the
26 public and all interested educational organizations in the conduct of
27 its work, including holding periodic regional public hearings.

28 ~~((8))~~ (6) The commission shall select an entity to provide staff
29 support and the office of ~~((financial management))~~ the superintendent
30 of public instruction shall ~~((contract with that entity))~~ provide
31 administrative oversight and be the fiscal agent for the commission.
32 The commission may direct the office of ~~((financial management))~~ the
33 superintendent of public instruction to enter into subcontracts, within
34 the commission's resources, with school districts, teachers, higher
35 education faculty, state agencies, business organizations, and other
36 individuals and organizations to assist the commission in its
37 deliberations.

38 ~~((9))~~ (7) Members of the commission shall be reimbursed for
39 travel expenses as provided in RCW 43.03.050 and 43.03.060.

PART III

STUDENT LEARNING IMPROVEMENT GRANTS

NEW SECTION. Sec. 301. A new section is added to chapter 28A.300 RCW to read as follows:

(1) To the extent funds are appropriated, the office of the superintendent of public instruction shall provide student learning improvement grants for the 1994-95 through 1996-97 school years. The purpose of the grants is to provide funds for additional time and resources for staff development and planning intended to improve student learning for all students, including students with diverse needs, consistent with the student learning goals in RCW 28A.150.210.

(2) To be eligible for student learning improvement grants, school district boards of directors shall:

(a) Adopt a policy regarding the sharing of instructional decisions with school staff, parents, and community members;

(b) Submit school-based applications that have been developed by school building personnel, parents, and community members. Each application shall:

(i) Enumerate specific activities to be carried out as part of the grant;

(ii) Identify the technical resources desired and availability of those resources;

(iii) Include a proposed budget; and

(iv) Indicate that the application was approved by the school principal and representatives of teachers, parents, and the community.

(3) The school board shall conduct at least one public hearing on schools' plans for using the grants before the board approves the plans. Boards may hear and approve more than one school's plan at a hearing. The board shall only submit applications for grants to the superintendent of public instruction if the board has approved the plans.

(4) If the requirements of subsections (2) and (3) of this section are met, the superintendent of public instruction shall approve the grant application.

(5) To the extent funds are appropriated, and for allocation purposes only, the amount of grants for the 1994-95 school year shall be based on time equivalent to no fewer than three days and not more than five days depending upon the number of grant applications received

1 and on the number of full-time equivalent certificated staff,
2 classified instructional aides, and classified secretaries who work in
3 the school at the time of application. For the 1995-96 and 1996-97
4 school years, the equivalent of five days annually shall be provided.
5 The allocation per full-time equivalent staff shall be determined in
6 the biennial operating appropriations act. School districts shall use
7 all funds received under this section solely for grants to schools and
8 shall not use any portion of the funds for indirect costs.

9 (6) The state schools for the deaf and blind may apply for grants
10 under this section.

11 (7) The superintendent of public instruction shall adopt timelines
12 and rules as necessary under chapter 34.05 RCW to administer the
13 program. The superintendent may modify application requirements for
14 schools that have schools for the twenty-first century projects under
15 RCW 28A.630.100. A copy of the proposed rules shall be submitted to
16 the joint select committee on education restructuring established in
17 section 1001 of this act at least forty-five days prior to adoption of
18 the rules.

19 (8) Funding under this section shall not become a part of the
20 state's basic program of education obligation as set forth under
21 Article IX of the state Constitution.

22 NEW SECTION. Sec. 302. A new section is added to chapter 28A.305
23 RCW to read as follows:

24 School districts may use the application process in section 301 of
25 this act to apply for waivers under RCW 28A.305.140.

26 PART IV

27 EDUCATOR TRAINING AND ASSISTANCE PROGRAMS

28 Sec. 401. RCW 28A.415.250 and 1991 c 116 s 19 are each amended to
29 read as follows:

30 The superintendent of public instruction shall adopt rules to
31 establish and operate a teacher assistance program. For the purposes
32 of this section, the terms "mentor teachers," "beginning teachers," and
33 "experienced teachers" may include any person possessing any one of the
34 various certificates issued by the superintendent of public instruction
35 under RCW 28A.410.010. The program shall provide for:

1 (1) Assistance by mentor teachers who will provide a source of
2 continuing and sustained support to beginning teachers, or experienced
3 teachers who are having difficulties, or both, both in and outside the
4 classroom. A mentor teacher may not be involved in evaluations under
5 RCW 28A.405.100 of a teacher who receives assistance from said mentor
6 teacher under the teacher assistance program established under this
7 section. The mentor teachers shall also periodically inform their
8 principals respecting the contents of training sessions and other
9 program activities;

10 (2) Stipends for mentor teachers and beginning and experienced
11 teachers which shall not be deemed compensation for the purposes of
12 salary lid compliance under RCW (~~28A.58.095~~) 28A.400.200: PROVIDED,
13 That stipends shall not be subject to the continuing contract
14 provisions of this title;

15 (3) Workshops for the training of mentor and beginning teachers;

16 (4) The use of substitutes to give mentor teachers, beginning
17 teachers, and experienced teachers opportunities to jointly observe and
18 evaluate teaching situations and to give mentor teachers opportunities
19 to observe and assist beginning and experienced teachers in the
20 classroom;

21 (5) Mentor teachers who are superior teachers based on their
22 evaluations, pursuant to RCW 28A.405.010 through 28A.405.240, and who
23 hold valid continuing certificates;

24 (6) Mentor teachers shall be selected by the district and may serve
25 as mentors up to and including full time. If a bargaining unit,
26 certified pursuant to RCW 41.59.090 exists within the district,
27 classroom teachers representing the bargaining unit shall participate
28 in the mentor teacher selection process; and

29 (7) Periodic consultation by the superintendent of public
30 instruction or the superintendent's designee with representatives of
31 educational organizations and associations, including educational
32 service districts and public and private institutions of higher
33 education, for the purposes of improving communication and cooperation
34 and program review.

35 NEW SECTION. Sec. 402. A new section is added to chapter 28A.415
36 RCW to read as follows:

37 (1) To the extent specific funds are appropriated for the pilot
38 program in this section, the superintendent of public instruction shall

1 establish a pilot program to support the pairing of full-time mentor
2 teachers with experienced teachers who are having difficulties and
3 full-time mentor teachers with beginning teachers under RCW
4 28A.415.250.

5 (2) The superintendent of public instruction shall submit a report
6 to the legislature by December 31, 1995, with findings about the pilot
7 program. The report shall include an analysis of the effectiveness of
8 the pilot program in the remediation of teachers having difficulties,
9 recommendations regarding continuing the program, and recommendations
10 on new procedures under chapter 28A.405 RCW regarding teachers who have
11 not shown sufficient progress in the area or areas of teaching skills
12 needing improvement.

13 (3) The superintendent of public instruction shall appoint an
14 oversight committee, which shall include teachers and administrators
15 from the pilot districts, that shall be involved in the evaluation of
16 the pilot program under this section.

17 (4) The superintendent of public instruction shall adopt rules as
18 necessary under chapter 34.05 RCW to implement the pilot program
19 established under subsection (1) of this section.

20 Sec. 403. RCW 28A.405.140 and 1990 c 33 s 387 are each amended to
21 read as follows:

22 After an evaluation conducted pursuant to RCW 28A.405.100, the
23 ~~((school district))~~ principal or the evaluator may require the teacher
24 to take in-service training provided by the district in the area of
25 teaching skills needing improvement, and may require the teacher to
26 have a mentor for purposes of achieving such improvement.

27 NEW SECTION. Sec. 404. A new section is added to chapter 28A.405
28 RCW to read as follows:

29 (1) To the extent funds are appropriated, the Washington state
30 principal internship support program is created beginning in the 1994-
31 95 school year. The purpose of the program is to provide funds to
32 school districts to hire substitutes for district employees who are in
33 a principal preparation program to complete an internship with a mentor
34 principal.

35 (2) Participants in the principal internship support program shall
36 be selected as follows:

1 (a) The candidate shall be enrolled in a state board-approved
2 school principal preparation program;

3 (b) The candidate shall apply in writing to his or her local school
4 district;

5 (c) Each school district shall determine which applicants meet its
6 criteria for participation in the principal internship support program
7 and shall notify its educational service district of the school
8 district's selected applicants. When submitting the names of
9 applicants, the school district shall identify a mentor principal for
10 each principal intern applicant, and shall agree to provide the
11 internship applicant at least forty-five student days of release time
12 for the internship; and

13 (d) Educational service districts, with the assistance of an
14 advisory board, shall select internship participants.

15 (3)(a) The maximum amount of state funding for each internship
16 shall be the estimated state-wide average cost of providing a
17 substitute teacher for forty-five school days.

18 (b) Funds appropriated for the principal internship support program
19 shall be allocated by the superintendent of public instruction to the
20 educational service districts based on the percentage of full-time
21 equivalent public school students enrolled in school districts in each
22 educational service district. Participants should be selected to
23 reflect the percentage of minorities of the student population in the
24 educational service district region, and to the extent practicable,
25 represent an equal number of women and men. If it is not possible to
26 find qualified candidates reflecting the percentage of minorities of
27 the student population of the educational service district, the
28 educational service district shall select those qualified candidates
29 who meet these criteria and leave the remaining positions unfilled, and
30 any unspent funds shall revert to the state general fund.

31 (c) Once principal internship participants have been selected, the
32 educational service districts shall allocate the funds to the
33 appropriate school districts. The funds shall be used to pay for
34 replacement substitute staff while the school district employee is
35 completing the principal internship.

36 (d) Educational service districts may be reimbursed for costs
37 associated with implementing the program. Reimbursement rates shall be
38 determined by the superintendent of public instruction.

1 NEW SECTION. Sec. 405. A new section is added to chapter 28A.405
2 RCW to read as follows:

3 (1) To the extent funds are appropriated, the Washington state
4 superintendent and program administrator internship support program is
5 created beginning in the 1994-95 school year. The purpose of the
6 program is to provide funds to school districts to hire substitutes for
7 district employees who are in a superintendent or program administrator
8 preparation program to complete an internship with a mentor
9 administrator.

10 (2) Participants in the superintendent and program administrator
11 internship support program shall be selected as follows:

12 (a) The candidate shall be enrolled in a state board-approved
13 school district superintendent or program administrator preparation
14 program;

15 (b) The candidate shall apply in writing to his or her local school
16 district;

17 (c) Each school district shall determine which applicants meet its
18 criteria for participation in the internship support program and shall
19 notify its educational service district of the school district's
20 selected applicants. When submitting the names of applicants, the
21 school district shall identify a mentor administrator for each intern
22 applicant and shall agree to provide the internship applicant at least
23 forty-five student days of release time for the internship; and

24 (d) Educational service districts, with the assistance of an
25 advisory board, shall select internship participants.

26 (3) (a) The maximum amount of state funding for each internship
27 shall be the estimated state-wide average cost of providing a
28 substitute teacher for forty-five school days as calculated by the
29 superintendent of public instruction.

30 (b) Funds appropriated for the internship support program shall be
31 allocated by the superintendent of public instruction to the
32 educational service districts based on the percentage of full-time
33 equivalent public school students enrolled in school districts in each
34 educational service district. To the extent practicable, participants
35 should be selected to reflect the racial and ethnic diversity of the
36 student population in the educational service district region, and
37 represent an equal number of women and men.

38 (c) Once internship participants have been selected, the
39 educational service districts shall allocate the funds to the

1 appropriate school districts. The funds shall be used to pay for
2 replacement substitute staff while the school district employee is
3 completing the internship.

4 (d) Educational service districts may be reimbursed for costs
5 associated with implementing the program. Reimbursement rates shall be
6 determined by the superintendent of public instruction.

7 NEW SECTION. Sec. 406. (1) The state board of education shall
8 appoint an administrator internship advisory task force to develop and
9 recommend to the board standards for the principal and superintendent
10 and program administrator internship support programs created in
11 sections 404 and 405 of this act. Interns shall be required to
12 complete the state board standards in order to successfully complete
13 the internship program. These standards shall be adopted by the state
14 board of education before the allocation of funds by the superintendent
15 of public instruction pursuant to sections 404(3)(c) and 405(3)(c) of
16 this act. Colleges, universities, and school districts may establish
17 additional standards.

18 (2) Task force membership shall include, but not be limited to,
19 representatives of the office of the superintendent of public
20 instruction, principals, superintendents, program administrators,
21 teachers, school directors, parents, higher education administrative
22 preparation programs, and educational service districts. The task
23 force membership shall, to the extent possible, be racially and
24 ethnically diverse.

25 NEW SECTION. Sec. 407. A new section is added to chapter 28A.300
26 RCW to read as follows:

27 The superintendent of public instruction shall adopt rules as
28 necessary under chapter 34.05 RCW to administer the principal and
29 superintendent and program administrator internship support programs.

30 NEW SECTION. Sec. 408. A new section is added to chapter 28A.300
31 RCW to read as follows:

32 (1) The paraprofessional training program is created. The primary
33 purpose of the program is to provide training for classroom assistants
34 to assist them in helping students achieve the student learning goals
35 under RCW 28A.150.210. Another purpose of the program is to provide
36 training to certificated personnel who work with classroom assistants.

1 (2) The superintendent of public instruction may allocate funds, to
2 the extent funds are appropriated for this program, to educational
3 service districts, school districts, and other organizations for
4 providing the training in subsection (1) of this section.

5 PART V

6 CENTER FOR THE IMPROVEMENT OF STUDENT LEARNING

7 Sec. 501. RCW 28A.300.130 and 1986 c 180 s 1 are each amended to
8 read as follows:

9 (1) ~~((Recent and))~~ Expanding activity in educational research,
10 educational restructuring, and educational improvement initiatives has
11 produced and continues to produce much valuable information. The
12 legislature finds that such information should be shared with the
13 citizens and educational community of the state as widely as possible.
14 To facilitate access to information and materials on ~~((education))~~
15 educational improvement and research, the superintendent of public
16 instruction, to the extent funds are appropriated, shall ~~((act as the~~
17 ~~state clearinghouse for educational information.~~

~~(2) In carrying out this function, the superintendent of public~~
19 ~~instruction's primary duty shall be to collect, screen, organize, and~~
20 ~~disseminate information pertaining to the state's educational system~~
21 ~~from preschool through grade twelve, including but not limited to in-~~
22 ~~state research and development efforts, descriptions of exemplary,~~
23 ~~model, and innovative programs, and related information that can be~~
24 ~~used in developing more effective programs.~~

~~(3) The superintendent of public instruction shall maintain a~~
26 ~~collection of such studies, articles, reports, research findings,~~
27 ~~monographs, bibliographies, directories, curriculum materials,~~
28 ~~speeches, conference proceedings, legal decisions that are concerned~~
29 ~~with some aspect of the state's education system, and other applicable~~
30 ~~materials. All materials and information shall be considered public~~
31 ~~documents under chapter 42.17 RCW and the superintendent of public~~
32 ~~instruction shall furnish copies of educational materials at nominal~~
33 ~~cost.~~

~~(4) The superintendent of public instruction shall coordinate the~~
36 ~~dissemination of information with the educational service districts and~~
37 ~~shall publish and distribute, on a monthly basis, a newsletter~~
~~describing current activities and developments in education in the~~

1 state)) establish the center for the improvement of student learning.
2 The primary purpose of the center is to provide assistance and advice
3 to parents, school board members, educators, and the public regarding
4 strategies for assisting students in learning the essential academic
5 learning requirements pursuant to RCW 28A.630.885. The center shall
6 work in conjunction with the commission on student learning,
7 educational service districts, and institutions of higher education.

8 (2) The center shall:

9 (a) Serve as a clearinghouse for the completed work and activities
10 of the commission on student learning;

11 (b) Serve as a clearinghouse for information regarding successful
12 educational restructuring and parental involvement programs in schools
13 and districts, and information about efforts within institutions of
14 higher education in the state to support educational restructuring
15 initiatives in Washington schools and districts;

16 (c) Provide best practices research and advice that can be used to
17 help schools develop and implement: School improvement plans; school-
18 based shared decision-making models; programs to promote lifelong
19 learning and community involvement in education; school-to-work
20 transition programs; programs to meet the needs of highly capable
21 students; programs to meet the diverse needs of students based on
22 gender, racial, ethnic, economic, and special needs status; and other
23 programs that will assist educators in helping students learn the
24 essential academic learning requirements;

25 (d) Develop and distribute, in conjunction with the commission on
26 student learning, parental involvement materials, including
27 instructional guides developed to inform parents of the essential
28 academic learning requirements. The instructional guides also shall
29 contain actions parents may take to assist their children in meeting
30 the requirements, and should focus on reaching parents who have not
31 previously been involved with their children's education;

32 (e) Identify obstacles to greater parent and community involvement
33 in school shared decision-making processes and recommend strategies for
34 helping parents and community members to participate effectively in
35 school shared decision-making processes, including understanding and
36 respecting the roles of school building administrators and staff;

37 (f) Take other actions to increase public awareness of the
38 importance of parental and community involvement in education;

1 (g) Work with appropriate organizations to inform teachers,
2 district and school administrators, and school directors about the
3 waivers available under RCW 28A.305.140 and the broadened school board
4 powers under RCW 28A.320.015;

5 (h) Provide training and consultation services;

6 (i) Address methods for improving the success rates of certain
7 ethnic and racial student groups; and

8 (j) Perform other functions consistent with the purpose of the
9 center as prescribed in subsection (1) of this section.

10 (3) The superintendent of public instruction, after consultation
11 with the commission on student learning, shall select and employ a
12 director for the center.

13 (4) The superintendent may enter into contracts with individuals or
14 organizations including but not limited to: School districts;
15 teachers; higher education faculty; institutions of higher education;
16 state agencies; business or community-based organizations; and other
17 individuals and organizations to accomplish the duties and
18 responsibilities of the center. The superintendent shall contract out
19 with community-based organizations to meet the provisions of subsection
20 (2) (d) and (e) of this section. In carrying out the duties and
21 responsibilities of the center, the superintendent, whenever possible,
22 shall use practitioners to assist agency staff as well as assist
23 educators and others in schools and districts.

24 (5) The superintendent shall report annually to the commission on
25 student learning on the activities of the center.

26 NEW SECTION. Sec. 502. A new section is added to chapter 28A.300
27 RCW to read as follows:

28 (1) The center for the improvement of student learning account is
29 hereby established in the custody of the state treasurer. The
30 superintendent of public instruction shall deposit in the account all
31 moneys received from gifts, grants, or endowments for the center for
32 the improvement of student learning. Moneys in the account may be
33 spent only for activities of the center. Disbursements from the
34 account shall be on authorization of the superintendent of public
35 instruction or the superintendent's designee. The account is subject
36 to the allotment procedure provided under chapter 43.88 RCW, but no
37 appropriation is required for disbursements.

1 (2) The superintendent of public instruction may receive such
2 gifts, grants, and endowments from public or private sources as may be
3 made from time to time, in trust or otherwise, for the use and benefi
4 of the purposes of the center for the improvement of student learning
5 and expend the same or any income therefrom according to the terms of
6 the gifts, grants, or endowments.

7 PART VI

8 SCHOOL-TO-WORK TRANSITIONS

9 NEW SECTION. Sec. 601. (1) The legislature finds that preparing
10 students to make successful transitions from school to work helps
11 promote educational, career, and personal success for all students.

12 (2) A successful school experience should prepare students to make
13 informed career direction decisions at critical points in their
14 educational progress. Schools that demonstrate the relevancy and
15 practical application of course work will expose students to a broad
16 range of interrelated career and educational opportunities and will
17 expand students' posthigh school options.

18 (3) The school-to-work transitions program, under chapter . . .
19 Laws of 1993 (Engrossed Substitute House Bill No. 1820), is intended to
20 help secondary schools develop model programs for school-to-work
21 transitions. The purposes of the model programs are to provide
22 incentives for selected schools to:

23 (a) Integrate vocational and academic instruction into a single
24 curriculum;

25 (b) Provide each student with a choice of multiple, flexible
26 educational pathways based on the student's career interest areas;

27 (c) Emphasize increased vocational and academic guidance and
28 counseling for students;

29 (d) Foster partnerships with local employers and employees to
30 incorporate work sites as part of work-based learning experiences;

31 (e) Encourage collaboration among middle or junior high schools and
32 secondary schools in developing successful transition programs and to
33 encourage articulation agreements between secondary schools and
34 community and technical colleges.

35 (4) The legislature further finds that successful implementation o
36 the school-to-work transitions program is an important part of
37 achieving the purposes of chapter . . . , Laws of 1993 (this act).

1 NEW SECTION. Sec. 702. Unless the context clearly requires
2 otherwise, the definitions in this section apply throughout this
3 chapter and section 705 of this act.

4 (1) "Education technology" or "technology" means the effective use
5 of electronic and optical tools, including telephones, and electronic
6 and optical pathways in helping students learn.

7 (2) "Network" means integrated linking of education technology
8 systems in schools for transmission of voice, data, video, or imaging,
9 or a combination of these.

10 NEW SECTION. Sec. 703. (1) The superintendent of public
11 instruction, to the extent funds are appropriated, shall develop and
12 implement a Washington state K-12 education technology plan. The
13 technology plan, which shall be completed by December 15, 1993, and
14 updated on at least a biennial basis, shall be developed to coordinate
15 and expand the use of education technology in the common schools of the
16 state. The plan shall be consistent with applicable provisions of
17 chapter 43.105 RCW. The plan, at a minimum, shall address:

18 (a) The provision of technical assistance to schools and school
19 districts for the planning, implementation, and training of staff in
20 the use of technology in curricular and administrative functions;

21 (b) The continued development of a network to connect school
22 districts, institutions of higher learning, and other sources of on-
23 line information; and

24 (c) Methods to equitably increase the use of education technology
25 by students and school personnel throughout the state.

26 (2) The superintendent of public instruction shall appoint an
27 educational technology advisory committee to assist in the development
28 and implementation of the technology plan in subsection (1) of this
29 section. The committee shall include, but is not limited to, persons
30 representing: The state board of education, the commission on student
31 learning, the department of information services, educational service
32 districts, school directors, school administrators, school principals,
33 teachers, classified staff, higher education faculty, parents,
34 students, business, labor, scientists and mathematicians, the higher
35 education coordinating board, the work force training and education
36 coordinating board, and the state library.

1 NEW SECTION. Sec. 704. In conjunction with the plan required in
2 section 703 of this act, the superintendent of public instruction shall
3 prepare recommendations to the legislature regarding the development of
4 a grant program for school districts for the purchase and installation
5 of computers, computer software, telephones, and other types of
6 education technology. The recommendations shall address methods to
7 ensure equitable access to technology by students throughout the state,
8 and methods to ensure that school districts have prepared technology
9 implementation plans before applying for grant funds. The
10 recommendations, with proposed legislation, shall be submitted to the
11 appropriate committees of the legislature by December 15, 1993.

12 NEW SECTION. Sec. 705. A new section is added to chapter 28A.310
13 RCW to read as follows:

14 Educational service districts shall establish, subject to available
15 funding, regional educational technology support centers for the
16 purpose of providing ongoing educator training, school district cost-
17 benefit analysis, long-range planning, network planning, distance
18 learning access support, and other technical and programmatic support.
19 Each educational service district shall establish a representative
20 advisory council to advise the educational service district in the
21 expenditure of funds provided to the technology support centers.

22 NEW SECTION. Sec. 706. The superintendent of public instruction,
23 to the extent funds are appropriated, shall distribute funds to
24 educational service districts on a grant basis for the regional
25 educational technology support centers established in section 705 of
26 this act.

27 NEW SECTION. Sec. 707. The superintendent of public instruction,
28 to the extent funds are appropriated, shall distribute funds to the
29 Washington school information processing cooperative and to school
30 districts on a grant basis, from moneys appropriated for the purposes
31 of this section, for equipment, networking, and software to expand the
32 current K-12 education state-wide network.

33 NEW SECTION. Sec. 708. (1) The superintendent of public
34 instruction may receive such gifts, grants, and endowments from public
35 or private sources as may be made from time to time, in trust or

1 otherwise, for the use and benefit of the purposes of educational
2 technology and expend the same or any income therefrom according to the
3 terms of the gifts, grants, or endowments.

4 (2) The education technology account is hereby established in the
5 custody of the state treasurer. The superintendent of public
6 instruction shall deposit in the account all moneys received from
7 gifts, grants, or endowments for education technology. Moneys in the
8 account may be spent only for education technology. Disbursements from
9 the account shall be on authorization of the superintendent of public
10 instruction or the superintendent's designee. The account is subject
11 to the allotment procedure provided under chapter 43.88 RCW, but no
12 appropriation is required for disbursements.

13 NEW SECTION. Sec. 709. The superintendent of public instruction
14 shall adopt rules as necessary under chapter 34.05 RCW governing the
15 operation and scope of this chapter.

16 NEW SECTION. Sec. 710. Sections 701 through 704 and 706 through
17 709 of this act shall constitute a new chapter in Title 28A RCW.

18 PART VIII

19 EDUCATOR PERFORMANCE ASSESSMENT

20 Sec. 801. RCW 28A.410.030 and 1991 c 116 s 21 are each amended to
21 read as follows:

22 (1) Effective May 1, 1996, the state board of education shall
23 require ((a uniform state admission to practice examination for))
24 teacher certification candidates ((Commencing August 31, 1993,
25 teacher certification candidates completing a teacher preparation
26 program shall be required)) applying for initial certification to pass
27 an ((admission to practice examination)) individual assessment before
28 being granted an initial certificate. The assessment shall include but
29 not be limited to essay questions. The requirement shall be waived for
30 out-of-state applicants with more than three years of teaching
31 experience. The ((examination)) assessment shall test knowledge and
32 competence in subjects including, but not limited to, instructional
33 skills, classroom management, ((and)) student behavior and
34 development ((The examination shall consist primarily of essay
35 questions)), oral and written language skills, student performance-

1 based assessment skills, and other knowledge, skills, and attributes
2 needed to be successful in assisting all students, including students
3 with diverse and unique needs, in achieving mastery of the essential
4 academic learning requirements established pursuant to RCW 28A.630.885.
5 In administering the assessment, the state board shall address the
6 needs of certification candidates who have specific learning
7 disabilities or physical conditions that may require special
8 consideration in taking the assessment.

9 (2) The state board of education shall adopt such rules as may be
10 necessary to implement this section, including, but not limited to,
11 rules establishing the fees assessed persons who apply to take the
12 assessment and the circumstances, if any, under which such fees may be
13 refunded in whole or part. Fees shall be set at a level not higher
14 than the costs for administering the tests. Fees shall not include
15 costs of developing the test. Fee revenues received under this section
16 shall be deposited in the teacher assessment revolving fund hereby
17 established in the custody of the state treasurer. The fund is subject
18 to the allotment procedures provided under chapter 43.88 RCW. But no
19 appropriation is required for disbursement. The superintendent of
20 public instruction shall be responsible for administering the
21 assessment program consistent with state board of education rules. The
22 superintendent of public instruction shall expend moneys from the
23 teacher assessment revolving fund exclusively for the direct and
24 indirect costs of establishing, equipping, maintaining, and operating
25 the assessment program.

26 (3) The state board of education shall only require the assessment
27 in subsection (1) of this section when the legislature appropriates
28 funds to develop the assessment under this section.

29 PART IX

30 READINESS TO LEARN

31 NEW SECTION. Sec. 901. A new section is added to chapter 70.190.
32 RCW to read as follows:

33 (1) The legislature finds that helping children to arrive at school
34 ready to learn is an important part of improving student learning.

35 (2) To the extent funds are appropriated, the family policy council
36 shall award grants to community-based consortiums that submit

1 comprehensive plans that include strategies to improve readiness to
2 learn.

3 PART X

4 DEREGULATION, ACCOUNTABILITY, FUNDING, AND LEGISLATIVE OVERSIGHT

5 NEW SECTION. Sec. 1001. (1) There is hereby created a joint
6 select committee on education restructuring composed of twelve members
7 as follows:

8 (a) Six members of the senate, three from each of the major
9 caucuses, to be appointed by the president of the senate; and

10 (b) Six members of the house of representatives, three from each of
11 the major caucuses, to be appointed by the speaker of the house of
12 representatives.

13 (2) Staff support shall be provided by senate committee services
14 and house of representatives office of program research as mutually
15 agreed by the cochairs of the joint select committee. The cochairs
16 shall be designated by the speaker of the house of representatives and
17 the president of the senate.

18 (3) The expenses of the committee members shall be paid by the
19 legislature under chapter 44.04 RCW.

20 (4) The committee shall seek advice from educators, business and
21 labor leaders, parents, and others during its deliberations.

22 NEW SECTION. Sec. 1002. The joint select committee on education
23 restructuring shall monitor, review, and annually report to the full
24 legislature upon the enactment and implementation of education
25 restructuring in Washington both at the state and local level,
26 including the following:

27 (1) The progress of the commission on student learning in the
28 completion of its tasks as designated in RCW 28A.630.885 and in any
29 subsequent legislation relating to education restructuring;

30 (2) The success of the center for improvement of student learning
31 established under RCW 28A.300.130;

32 (3) The number of school districts seeking waivers from basic
33 education act requirements under RCW 28A.305.140 or other legislation,
34 and the success of alternative programs pursued by those school
35 districts;

1 (4) The progress and success of the commission on student learning,
2 the superintendent of public instruction, the state board of education,
3 the higher education coordinating board, and the state board for
4 community and technical colleges in carrying out RCW 28A.630.885(3)(g),
5 and any subsequent legislation relating to education restructuring; and
6 (5) Such other areas as the committee may deem appropriate.

7 NEW SECTION. Sec. 1003. (1) In addition to the duties in section
8 1002 of this act, the joint select committee on education restructuring
9 shall review all laws pertaining to K-12 public education and to
10 educator preparation and certification, except those that protect the
11 health, safety, and civil rights of students and staff, with the intent
12 of identifying laws that inhibit the achievement of the new system of
13 performance-based education. The select committee shall report to the
14 legislature by November 15, 1994. The laws pertaining to home
15 schooling and private schools shall not be reviewed in this study.

16 (2) The joint select committee on education restructuring shall
17 review current school district data reporting requirements for the
18 purposes of accountability and meeting state information needs. The
19 joint select committee shall report to the legislature by January 1995
20 on:

21 (a) What data is necessary to compare how school districts are
22 performing before the essential academic learning requirements and the
23 assessment system are implemented with how school districts are
24 performing after the essential academic learning requirements and the
25 assessment system are implemented; and

26 (b) What data is necessary pertaining to school district reports
27 under the accountability systems developed by the commission on student
28 learning under RCW 28A.630.885(3)(h).

29 NEW SECTION. Sec. 1004. By September 1, 1994, and each September
30 1st thereafter, the commission on student learning, the superintendent
31 of public instruction, the state board of education, the higher
32 education coordinating board; and the state board for community and
33 technical colleges shall each report to the joint select committee on
34 education restructuring regarding their progress in completing tasks as
35 designated in chapter . . . , Laws of 1993 (this act), and tasks in any
36 subsequent legislation relating to education restructuring.

1 NEW SECTION. Sec. 1005. The joint select committee on education
2 restructuring shall submit its final report to the legislature by
3 December 31, 2001.

4 NEW SECTION. Sec. 1006. A new section is added to chapter 28A.320
5 RCW to read as follows:

6 (1) Beginning with the 1994-95 school year, to provide the local
7 community and electorate with access to information on the educational
8 programs in the schools in the district, each school shall publish
9 annually a school performance report and deliver the report to each
10 parent with children enrolled in the school and make the report
11 available to the community served by the school. The annual
12 performance report shall be in a form that can be easily understood and
13 be used by parents, guardians, and other members of the community who
14 are not professional educators to make informed educational decisions.
15 As data from the assessments in RCW 28A.630.885 becomes available, the
16 annual performance report should enable parents, educators, and school
17 board members to determine whether students in the district's schools
18 are attaining mastery of the student learning goals under RCW
19 28A.150.210, and other important facts about the schools' performance
20 in assisting students to learn. The annual report shall make
21 comparisons to a school's performance in preceding years and shall
22 project goals in performance categories.

23 (2) The annual performance report shall include, but not be limited
24 to: A brief statement of the mission of the school and the school
25 district; enrollment statistics including student demographics;
26 expenditures per pupil for the school year; a summary of student scores
27 on all mandated tests; a concise annual budget report; student
28 attendance, graduation, and dropout rates; information regarding the
29 use and condition of the school building or buildings; a brief
30 description of the restructuring plan for the school; and an invitation
31 to all parents and citizens to participate in school activities.

32 (3) The superintendent of public instruction shall develop by June
33 30, 1994, a model report form, which shall also be adapted for
34 computers, that schools may use to meet the requirements of subsections
35 (1) and (2) of this section.

36 NEW SECTION. Sec. 1007. (1) A legislative fiscal study committee
37 is hereby created. The committee shall be comprised of three members

1 from each caucus of the senate, appointed by the president of the
2 senate, and three members from each caucus of the house of
3 representatives, appointed by the speaker of the house of
4 representatives. In consultation with the office of the superintendent
5 of public instruction, the committee shall study the common school
6 funding system.

7 (2) By January 16, 1995, the committee shall report to the full
8 legislature on its findings and any recommendations for a new funding
9 model for the common school system.

10 (3) This section shall expire January 16, 1995.

11 Sec. 1008. RCW 28A.225.220 and 1990 1st ex.s. c 9 s 201 are each
12 amended to read as follows:

13 (1) Any board of directors may make agreements with adults choosing
14 to attend school: PROVIDED, That unless such arrangements are approved
15 by the state superintendent of public instruction, a reasonable tuition
16 charge, fixed by the state superintendent of public instruction, shall
17 be paid by such students as best may be accommodated therein.

18 (2) A district is strongly encouraged to honor the request of a
19 parent or guardian for his or her child to attend a school in another
20 district.

21 (3) A district shall release a student to a nonresident district
22 that agrees to accept the student if:

23 (a) A financial, educational, safety, or health condition affecting
24 the student would likely be reasonably improved as a result of the
25 transfer; or

26 (b) Attendance at the school in the nonresident district is more
27 accessible to the parent's place of work or to the location of child
28 care; or

29 (c) There is a special hardship or detrimental condition.

30 (4) A district may deny the request of a resident student to
31 transfer to a nonresident district if the release of the student would
32 adversely affect the district's existing desegregation plan.

33 (5) For the purpose of helping a district assess the quality of its
34 education program, a resident school district may request an optional
35 exit interview or questionnaire with the parents or guardians of a
36 child transferring to another district. No parent or guardian may be
37 forced to attend such an interview or complete the questionnaire.

1 hereinafter set forth are being met, noting any deviations. After
2 review of the statement, the state superintendent will notify schools
3 or school districts of those deviations which must be corrected. In
4 case of major deviations, the school or school district may request and
5 the state board of education may grant provisional status for one year
6 in order that the school or school district may take action to meet the
7 requirements. Minimum requirements shall be as follows:

8 (1) The minimum school year for instructional purposes shall
9 consist of no less than one hundred eighty school days or the
10 equivalent in annual minimum program hour offerings as prescribed in
11 RCW 28A.150.220.

12 (2) The school day shall be the same as that required in RCW
13 28A.150.030 and 28A.150.220, except that the percentages of total
14 program hour offerings as prescribed in RCW 28A.150.220 for basic
15 skills, work skills, and optional subjects and activities shall not
16 apply to private schools or private sectarian schools.

17 (3) All classroom teachers shall hold appropriate Washington state
18 certification except as follows:

19 (a) Teachers for religious courses or courses for which no
20 counterpart exists in public schools shall not be required to obtain a
21 state certificate to teach those courses.

22 (b) In exceptional cases, people of unusual competence but without
23 certification may teach students so long as a certified person
24 exercises general supervision. Annual written statements shall be
25 submitted to the office of the superintendent of public instruction
26 reporting and explaining such circumstances.

27 (4) An approved private school may operate an extension program for
28 parents, guardians, or persons having legal custody of a child to teach
29 children in their custody. The extension program shall require at a
30 minimum that:

31 (a) The parent, guardian, or custodian be under the supervision of
32 an employee of the approved private school who is certified under
33 chapter 28A.410 RCW;

34 (b) The planning by the certified person and the parent, guardian,
35 or person having legal custody include objectives consistent with this
36 subsection and subsections (1), (2), (5), (6), and (7) of this section;

37 (c) The certified person spend a minimum average each month of one
38 contact hour per week with each student under his or her supervision
39 who is enrolled in the approved private school extension program;

1 (d) Each student's progress be evaluated by the certified person;
2 and

3 (e) The certified employee shall not supervise more than thirt
4 students enrolled in the approved private school's extension program.

5 (5) Appropriate measures shall be taken to safeguard all permanent
6 records against loss or damage.

7 (6) The physical facilities of the school or district shall be
8 adequate to meet the program offered by the school or district:
9 PROVIDED, That each school building shall meet reasonable health and
10 fire safety requirements. However, the state board shall not require
11 private school students to meet the student learning goals, obtain a
12 certificate of mastery to graduate from high school, to master the
13 essential academic learning requirements, or to be assessed pursuant to
14 RCW 28A.630.885. However, private schools may choose, on a voluntary
15 basis, to have their students master these essential academic learning
16 requirements, take these assessments, and obtain certificates of
17 mastery. A residential dwelling of the parent, guardian, or custodian
18 shall be deemed to be an adequate physical facility when a parent,
19 guardian, or person having legal custody is instructing his or her
20 child under subsection (4) of this section.

21 (7) Private school curriculum shall include instruction of the
22 basic skills of occupational education, science, mathematics, language,
23 social studies, history, health, reading, writing, spelling, and the
24 development of appreciation of art and music, all in sufficient units
25 for meeting state board of education graduation requirements.

26 (8) Each school or school district shall be required to maintain
27 up-to-date policy statements related to the administration and
28 operation of the school or school district.

29 All decisions of policy, philosophy, selection of books, teaching
30 material, curriculum, except as in subsection (7) above provided,
31 school rules and administration, or other matters not specifically
32 referred to in this section, shall be the responsibility of the
33 administration and administrators of the particular private school
34 involved.

35 NEW SECTION. Sec. 1102. 1992 c 141 s 505 is repealed.

36 Sec. 1103. RCW 28A.200.010 and 1990 c 33 s 178 are each amended to
37 read as follows:

1 Each parent whose child is receiving home-based instruction under
2 RCW 28A.225.010(4) shall have the duty to:

3 (1) File annually a signed declaration of intent that he or she is
4 planning to cause his or her child to receive home-based instruction.
5 The statement shall include the name and age of the child, shall
6 specify whether a certificated person will be supervising the
7 instruction, and shall be written in a format prescribed by the
8 superintendent of public instruction. Each parent shall file the
9 statement by September 15 of the school year or within two weeks of the
10 beginning of any public school quarter, trimester, or semester with the
11 superintendent of the public school district within which the parent
12 resides;

13 (2) Ensure that test scores or annual academic progress assessments
14 and immunization records, together with any other records that are kept
15 relating to the instructional and educational activities provided, are
16 forwarded to any other public or private school to which the child
17 transfers. At the time of a transfer to a public school, the
18 superintendent of the local school district in which the child enrolls
19 may require a standardized achievement test to be administered and
20 shall have the authority to determine the appropriate grade and course
21 level placement of the child after consultation with parents and review
22 of the child's records; and

23 (3) Ensure that a standardized achievement test approved by the
24 state board of education is administered annually to the child by a
25 qualified individual or that an annual assessment of the student's
26 academic progress is written by a certificated person who is currently
27 working in the field of education. The state board of education shall
28 not require these children to meet the student learning goals, master
29 the essential academic learning requirements, to take the assessments,
30 or to obtain a certificate of mastery pursuant to RCW 28A.630.885. The
31 standardized test administered or the annual academic progress
32 assessment written shall be made a part of the child's permanent
33 records. If, as a result of the annual test or assessment, it is
34 determined that the child is not making reasonable progress consistent
35 with his or her age or stage of development, the parent shall make a
36 good faith effort to remedy any deficiency.

37 Failure of a parent to comply with the duties in this section shall
38 be deemed a failure of such parent's child to attend school without
39 valid justification under RCW 28A.225.020. Parents who do comply with

1 the duties set forth in this section shall be presumed to be providing
2 home-based instruction as set forth in RCW 28A.225.010(4).

3 PART XII
4 MISCELLANEOUS

5 NEW SECTION. Sec. 1201. RCW 28A.630.884 and 1992 c 141 s 201 are
6 each repealed.

7 Sec. 1202. 1992 c 141 s 509 (uncodified) is amended to read as
8 follows:

9 Sections (~~501~~) 502 through 504, 506, and 507 of this act shall
10 take effect September 1, (~~1998~~) 2000. However, these sections shall
11 not take effect if, by September 1, (~~1998~~) 2000, a law is enacted
12 stating that a school accountability and academic assessment system is
13 not in place.

14 NEW SECTION. Sec. 1203. 1992 c 141 s 501 is repealed.

15 NEW SECTION. Sec. 1204. Part headings as used in this act
16 constitute no part of the law.

--- END ---

January 1994

TO: Members of the Washington State Legislature

FROM: Judith A. Billings, State Superintendent of Public Instruction

RE: Interim Report on the K-12 State Plan for Technology

The development of the Washington State Technology Plan for K-12 Education is one of several statewide technology initiatives launched this year under Engrossed Substitute House Bill 1209 (ESHB 1209). This interim report represents the consensus of a very diverse Education Technology Advisory Committee and another step forward in our ongoing effort to ensure educational excellence for students. It provides a framework, time lines, Phase I recommendations and issues for consideration as the committee works toward a September 1994 completion date.

It is my intent, as a member of the Commission on Student Learning, to ensure that technology is integrated into the new education system of the state. With the tremendous economic, political and social impact of technology and telecommunications on our society, it is critical that today's learners be able to use technology both skillfully and intelligently. As this state transitions to a performance-based system, technology will be key to ensuring that all children are provided with the opportunity to reach the state learning goals.

The Phase I recommendations, if funded, would:

- leverage community, business and industry and governmental resources toward the use of technology to support students in reaching the state learning goals;
- ensure that technology is effectively integrated into classroom curricula in conjunction with the work of the Commission on Student Learning;
- continue to expand the information highway for K-12 education and provide districts with network planning assistance;
- expand the on-line resources available to students and educators; and
- revise rules and regulations to provide school districts with more flexibility in the use of technology funds.

In this day of limited state resources these Phase I recommendations will leverage existing state and local technology initiatives and move Washington State a step closer to equity of educational opportunity for all learners.

For more information or additional copies of this report, please contact:

Susan Patrick
Legislative Liaison
Old Capitol Building, PO BOX 47200
Olympia, WA 98504-7200
Phone: (206) 586-6906 or SCAN 321-6906

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Appendices

- A. Sections 701-710, Engrossed Substitute House Bill 1209
- B. Engrossed Substitute House Bill 1209 Technology Update

Washington State Education Technology Advisory Committee

Dale Boose
Representing: Work Force Training and
Education Coordinating Board

Representative Tracey Eide
Washington State
House of Representatives
Representing: House Education
Committee

Rick Feutz
Kent School District
Representing: Washington Education
Association

C.W. (Bill) Fromhold
Educational Service District 112
Representing: Educational Service
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Irene Hays
Battelle
Representing: Business and Industry

Bob Hughes
Boeing Executive
Representing: The Boeing Company

Tony Jongejan
Western Washington University
Representing: Higher Education Faculty

Betty Klein
White River Middle School
Representing: Classified Staff

Robert Kraig
Onalaska School District
Representing: Washington Association
of School Administrators

Cheryl Lemke
Office of Superintendent of Public
Instruction
Representing: OSPI

Nicole Lancaster
GTE
Representing: Washington Business
Roundtable

George Lindamood
Department of Information Services
Representing: Department of
Information Services

Lynn McKinnon
Public School Employees of Washington
Representing: Classified Staff

Jerre McQuinn
Washington State PTA
Representing: Parent Teacher
Association

Brian Miller
Skykomish School District
Representing: Washington State School
Directors' Association

Mary Moore
Washington State Library
Representing: Washington State Library

Karen Morse
Cheney Middle School
Representing: Middle School Teachers

Katrina Meyers
Representing: Higher Education
Coordinating Board

Chapter 1

Introduction

This report is in response to a legislative mandate.

An Education Technology Advisory Committee was convened.

The 1993 State Legislature, under the Education Reform Act (Engrossed Substitute House Bill 1209) charged the Superintendent of Public Instruction with the development of a State Technology Plan for K-12 Education.

The statute requires that "(1) ... the technology plan ... shall be developed to coordinate and expand the use of education technology in the common schools of the state ... The plan, at a minimum, shall address:

(a) The provision of technical assistance to schools and school districts for the planning, implementation, and training of staff in the use of technology in curricular and administrative functions;

(b) The continued development of a network to connect school districts, institutions of higher learning, and other sources of on-line information; and

(c) Methods to equitably increase the use of education technology by students and school personnel throughout the state.

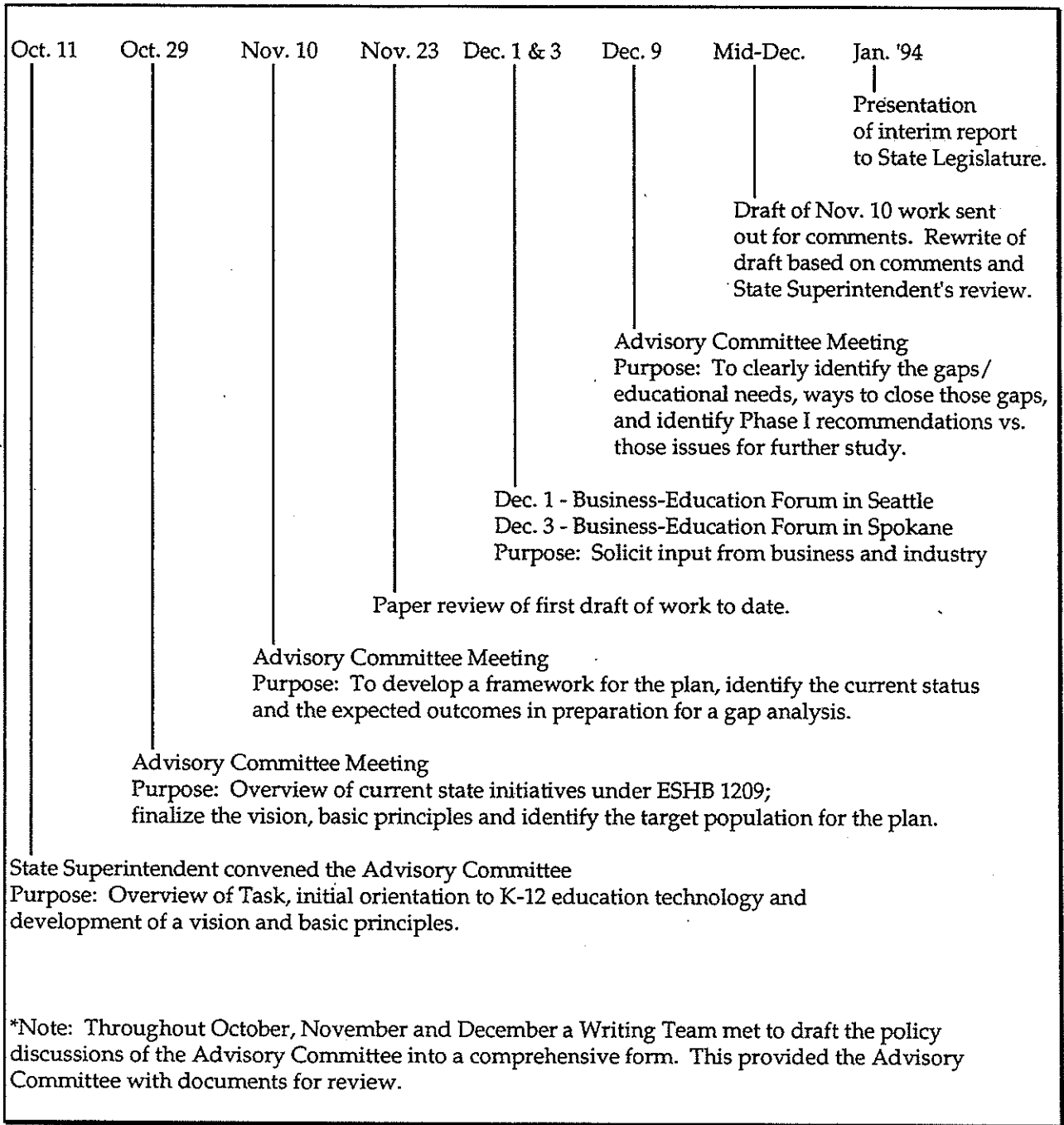
(2) The superintendent of public instruction shall appoint an education technology advisory committee to assist in the development and implementation of the technology plan in subsection (1) of this section ...

Section (704) ... the superintendent of public instruction shall prepare recommendations to the legislature regarding the development of a grant program for school districts for the purchase and installation of computers, computer software, telephones, and other types of education technology. The recommendations shall address methods to ensure equitable access to technology by students throughout the state, and methods to ensure that school districts have prepared technology implementation plans before applying for grant funds."

During the fall of 1993, Superintendent Billings convened a twenty-eight member Education Technology Advisory Committee which represented a diverse strata of K-12 education stakeholders. This group has met on four occasions to assist the Superintendent in the development of that state plan.

1993 Time Line

The Education Technology Advisory Committee worked through the fall of 1993 to establish a framework and Phase I recommendations for the State Technology Plan.



Chapter 2

Why Technology in Schools?

The contemporary workplace includes computers, copy machines, fax machines, phones and modems which put information at the worker's fingertips. It has become a way of life.

Today's auto mechanics plug cars into computers for diagnosing problems; business is conducted from the nation's freeways via cellular phones; robots work in the "dark" factories of today's industries; the news reporter meets daily deadlines through computerized systems with real-time access to wire services; farmers compete on world markets, tracking production, crops prices and watering schedules via technology; and workers experience the transition to a global economy and recognize the importance of information-based industries. Examples such as these abound in the fields of entertainment, communications, transportation, the environment, and government. In fact every field you can name has been impacted in a major way except education, the place where we prepare our future citizenry.

Our education system must prepare children and youth to successfully meet the challenges of today's technological and information-based society. In the last 100 years the aerospace industry has gone from the Wright Brothers' first flight to rocket ships traveling past the farthest planets in our solar system. Motion pictures have progressed from their original inception to live television coverage around the world of events such as the Gulf War. Considering that there are children being born today that will be alive, not just in the 21st century, but into the 22nd century, how well are we preparing them for their next 100 years?

All this translates into a need for education reform with technology at several different levels:

- adapting schools' curricula, instructional strategies, assessment techniques and learning environments to take full advantage of technology in meeting the state's new learning goals (e.g., stressing problem-solving with students in mathematics by predicting weather patterns using real-time data and charts);

Chapter 3

The Vision for K-12 Technology

"In a society increasingly dependent on information, a critical component of education is equitable and universal access to technology and information resources. With these tools and the guidance of skillful educators as well as community members, students take responsible roles in their own learning and are actively engaged in creating learning environments as they think, solve problems and communicate in collaborative and interdisciplinary settings. Students emerge as lifelong learners, productive members of the workforce, and contributing citizens."

1993 Education Technology Advisory Committee

Vision Scenario: Consumer Protection

Kelly, Maria and Ng are engaged in checking out safety features and reliability of the newest toys for toddlers. As a part of their physics class, these students gather and analyze data about the toys using probes and other peripherals connected to computers to check such features as strength of materials under different conditions and the accuracy and speed of toys under repeated testing. These students have made a recommendation to a toy manufacturer which ultimately was used to improved the safety of a toy.

Vision Scenario: Communication with the Community

In Ms. Jongejan's classroom children are gaining self-confidence in their own ability to influence the health of their environment. The class is actively involved in a community-based wetlands project in which students wordprocess letters to the community, correspond with practicing environmental scientists on-line, access information on the electronic encyclopedia on CD-ROM, maintain a database on birds and animals on the wetlands and desktop publish reports for presentation to community groups.

Vision Scenario: At Your Fingertips

A sixth grade class downloads the text of all speeches of the presidential candidates during the final six months of the campaign. In small groups they summarize the positions of the candidates and analyze changes in positions over time and by location of the delivered speeches.

Five Principles

Five principles form the basis for the development of the state plan:

1. In our rapidly changing world, the economic viability of communities and individuals depends on the ability to access information, build knowledge and solve problems. Technology plays a key role in this process and students must develop skills in its use.
2. Now and in the future all learners and educators must have equitable and universal access to information and technology and be skilled in technology applications.
3. Communication linkages among all of the *stakeholders in a child's life are critical to the education and well-being of the whole child. Technology is a critical element in establishing these vital linkages.
4. The use of technology is essential to the restructuring of schools through:
 - increased access to information;
 - increased application of appropriate instructional, management and assessment tools;
 - new strategies and tools which involve students in creating and producing meaningful knowledge; and
 - greater relevance to the community and workplace.
5. Effective use of technology in schools in Washington state must be based on coordinated planning and funding efforts at the state, regional, and local levels. To effect change, factors such as training, support, and time must be addressed simultaneously.

*Stakeholders in this process include, but are not limited to, educators and support personnel from all levels, students, parents, community members, business and industry representatives, labor and union representatives, governmental agencies, Office of Superintendent of Public Instruction, State Board of Education, and the legislature.

Chapter 4

A Framework for the Plan

Leadership

Resources

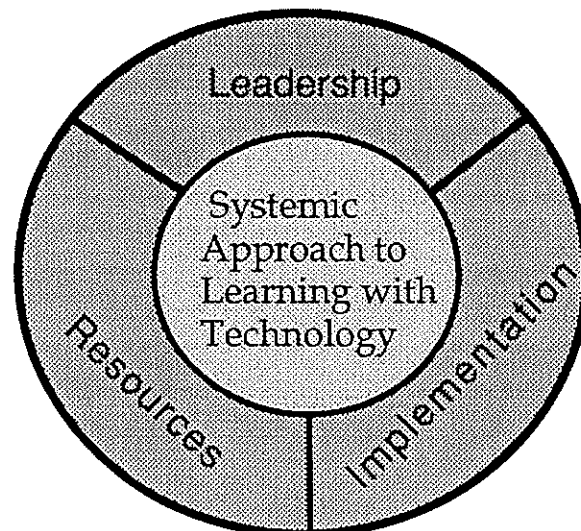
Implementation

Change is Never Easy

The systemic approach to integrating technology in schools is necessary to ensure that every learner in Washington's common school system is afforded opportunities to use technology to enhance their academic achievement.

With this vision established, it is incumbent upon the policy-makers in government, education, business, labor and community to work together to enable each learner in the common school system to succeed. This translates into a need for:

- Leadership by all stakeholders (e.g., vision, proactive planning and public policy which enable and encourage local schools and school districts to align the curriculum, instruction, assessment and learning environment to reach the vision; connections with the Commission on Student Learning, the State Board of Education, the Office of Superintendent of Public Instruction);
- Resources at the state and local levels (e.g., staff development; a state backbone which provides connectivity and standards; the human resources to operate the backbone, train the staff and provide access to information; state coordination to leverage local access to equipment, training, media and information services; a support system to provide unbiased technical and programmatic information; an interchange for exchange of information among schools); and
- Implementation (e.g., support and time for local school districts and buildings to carefully vision, plan and implement the integration of technology into the curriculum and instruction of the education system, long-term commitment and continued evaluation and assessment to maximize results).



Chapter Five

Current Technology Initiatives

A State Snapshot of Technology in Schools

Leadership

Special Education Technology Center

Statewide Video Teleconferencing

Instructional Television

Regional Support

Technology initiatives are underway across the state by a variety of stakeholders.

Preliminary data on the Fall 1993 Statewide Technology Survey indicates that:

- 49% of school districts have technology coordinators;
 - 50% of school buildings have designated technology resource people (typically part-time assignments);
 - Over 80% of school districts are developing, implementing or revising a technology plan;
 - Less than a third of students use technology regularly within their learning environment;
 - Less than 25% of school buildings use E-mail;
 - Less than 25% of students use telecommunications access to support learning;
 - Less than 10% of educators and/or students have Internet access; and
 - Less than 10% of school building libraries are on-line.
-
- The Office of Superintendent of Public Instruction (OSPI) continues to provide proactive state leadership through conferences, technology-based classroom pilots, partnerships, grant writing and information dissemination.
 - The Washington State Special Education Technology Center provides technical assistance, staff development, inservice and preview of special adaptive devices.
 - OSPI is partnering with the educational service districts and the Department of Information Services to establish a statewide two-way interactive video teleconferencing system.
 - The Public Broadcasting stations provide instructional television services and on-line telecommunications services to 125 school districts, impacting 411,000 students and 29,000 educators. Seven hundred twenty hours of programming is provided annually.
 - Coordinated by OSPI, nine Educational Technology Support Centers at the educational service districts are providing technology inservice, networking consultation, technical support, etc., to schools and school districts.

Chapter 7

The Gaps: What's Missing?

Leadership Gaps

Despite the pioneering efforts in this state, there is much to be done. We want to be sure that our students are achieving at world-class standards and that they are prepared to be productive members of the workforce.

The Education Technology Advisory Committee identified the following gaps in the education system which are preventing schools from providing the learning opportunities necessary for students to reach the technology vision:

- **Leadership Gaps:** The many entities which directly and indirectly impact K-12 education do not have a common understanding of the ways in which technology can help students meet educational goals. Closing this gap assists policymakers and decision makers to agree on how to leverage technology resources to increase academic achievement in schools.

There is a need for increased public understanding of the role and value of technology in schools as well as a need for stronger state coordination in protocols, standards, application of best instructional practices and benchmarks for planning and resource allocation.

Closing these gaps will increase strategic planning efforts, sound educational integration of technology in curriculum and instruction and connectivity options while maintaining flexibility at the local level.

Resource Gaps

- **Resource Gaps:** Lack of time and personnel are human resource gaps which inhibit quality planning, implementation, operation and evaluation of technology in schools. Staff development programs which truly meet the specific technology needs of students, educators and administrators require commitment, time and support.

It is not easy for educators to leverage each other's experiences and knowledge because information on best practices, exemplary programs, research and general information is not readily accessible to all.

Chapter 8

Closing the Gaps: Summary of Phase I Recommendations

Washington State has made great strides in education technology through both state-level and local initiatives. Phase I recommendations will build on current initiatives to move the state forward as the technology plan is completed.

Leadership: Recommendation 1

Public Awareness \$300,000
Increase understanding and commitment among all stakeholders to the use of K-12 education technology.

Resources: Recommendation 2

On-Line Resources \$550,000
Provide relevant information and services in electronic form for Washington learners.

Recommendation 3

State Infrastructure \$690,000
Enhance the existing statewide electronic network for K-12 education.

Recommendation 4

Technology Infrastructure Standards \$50,000
Develop technology infrastructure standards for K-12 school facilities.

Recommendation 5

Business Education Partnerships No cost
Provide incentives for business and industry to engage in partnerships with education.

Implementation: Recommendation 6

Classroom-based Technology Projects \$750,000
Support technology-based curriculum projects which engage classrooms across the state in on-line resource access and inservice.

Recommendation 7

Second-tier Levy No Cost
Provide schools increased flexibility in their use of levy dollars to support education technology.

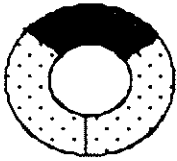
Recommendation 8

Technology in the State Learning Goals No Cost
Include technology in the essential academic learning requirements.

Recommendation 9

Teacher Certification and Technology \$50,000
Incorporate technology in the current study on performance-based teacher certification.

Total \$2,390,000



#1

Leadership: Recommendation to Close the Gap

Gap:

Stakeholders and policymakers for K-12 education do not have a common knowledge base concerning educational technology.

Recommendation #1:

It is recommended that the 1994 State Legislature appropriate funds to the Superintendent of Public Instruction for the purpose of increasing awareness, understanding and commitment among all stakeholders to the use of education technology in the common schools.

Expected Result:

Schools will be better positioned to provide technology-enriched learning environments for students by leveraging and aligning existing resources among all stakeholders.

Background:

There is a recognition on the part of stakeholders that K-12 education is an important key to the economic growth and health of the state. And, that technology plays a key role in students' future successes in the contemporary work place. To effectively integrate technology in schools, the policy-makers and stakeholders (e.g., the Superintendent of Public Instruction, the State Board of Education, students, parents, local school boards, business and industry, community patrons and community groups) must collectively support school district technology efforts. If the stakeholders agreed on how technology should be integrated into the school system, resources from a variety of sources could be aligned to leverage results.

Who/What:

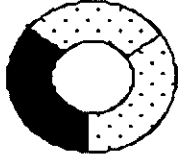
The Superintendent of Public Instruction will work with all stakeholders and a professional research/communications firm to identify current attitudes of various groups regarding education technology; design a strategic plan to increase the awareness, buy-in and commitment of stakeholders to a common vision; work with student groups to develop tools to communicate with each stakeholder group; and use those tools to get stakeholder buy-in for the vision.

When:

1994-1995

Budget Request:

\$300,000



#2

Resources: Recommendation to Close the Gap

Gap:

The state has information services and resources which would be extremely valuable in the classroom but these resources are not readily accessible to schools across the state.

Recommendation #2:

It is recommended that the 1994 State Legislature appropriate funds to the Superintendent of Public Instruction for the purpose of supporting in-state entities (e.g., universities, libraries, classrooms, museums, resource agencies) in their provision of relevant information and services in electronic form for Washington learners.

Expected Result:

K-12 students will be able to electronically tap into existing resources (e.g., universities, libraries, peers in other classrooms, museums, community groups, experts in various fields). The on-line information will include the involvement of students as sources and conduits of information. It will also augment and leverage:

- existing resources in the Center for the Improvement of Student Learning,
- the support provided through the Educational Technology Support Centers and
- the Washington School Information Processing Cooperative's state network.

This electronic network will support connections with existing sources of information and support the transformation of existing non-electronic information into a form which is accessible on-line.

Background:

Our society is experiencing an information explosion. The question is whether or not learners will have ready, timely access to the information and are able to intelligently select, process and communicate information.

Who/What:

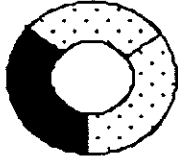
The Superintendent of Public Instruction will establish on-line resources and grant funds to in-state entities to do the same.

When:

1994-95

Budget Request:

\$550,000



#3

Resources: Recommendation to Close the Gap

Gap:

Not all schools and/or classrooms have access to resources and services across the electronic networks. The gap is three-fold: many schools need dial-up capacity until they can establish local networks; additional resources are needed at the state level to support increased traffic on the network; and districts need assistance in network planning.

Recommendation #3:

It is recommended that the 1994 State Legislature appropriate funds to the Superintendent of Public Instruction for the purpose of enhancing the statewide electronic network for K-12 education, supporting increased network capacity to handle the increased traffic and assisting districts in network planning.

Expected Result:

Schools will be able to dial into the network from single computers with modems as an interim step to their connecting through a local network. With increased assistance in networking, schools will make better decisions in planning for and implementing local networks. The added personnel will allow the network operation to continue efficiently even as usage demands grow.

Background:

As the Washington School Information Processing Cooperative expands its administrative network to handle instructional and curricular traffic the capacity of the system must be increased. Most schools "walk before they run" in trying out the use of telecommunications in the classroom before committing resources to connect the entire district. Therefore, for a few transitional years, the state network must provide dial-up capacity for districts. As school districts begin to see the potential, they are requiring assistance in planning and implementing local networks.

Who/What:

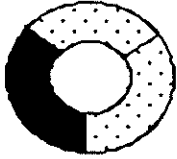
The Superintendent of Public Instruction will work with the Washington School Information Processing Cooperative and the educational service districts to provide the services described.

When:

1994-95

Budget Request:

\$690,000



#4

Resources: Recommendation to Close the Gap

Gap:

School districts do not currently have ready access to technology infrastructure standards on which they can base facilities design for modernization and/or new construction.

Recommendation #4:

It is recommended that the 1994 Washington State Legislature appropriate funds to the Superintendent of Public Instruction to establish a K-12 Technology Standards Advisory Committee to develop and annually review and revise technology infrastructure standards for K-12 facilities. It is further recommended that the Advisory Committee work with the state architects' association to increase awareness and commitment to school design which accommodates technology infrastructure needs.

Expected Result:

Leveraging of new construction and modernization funds by ensuring that schools have ready access to up-to-date technology infrastructure standards to incorporate in their facilities designs.

Background:

As school districts remodel facilities and/or build new schools, they want to include specifications which ensure that their technology, communications and networking needs will be incorporated into the design of the buildings.

Who/What:

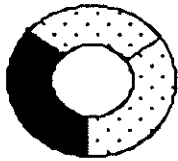
The Superintendent of Public Instruction will establish a K-12 Technology Standards Advisory Committee to develop and annually review/revise technology infrastructure standards for K-12 facilities. That committee would include but not be limited to representation from: the State Board of Education, higher education schools of architecture, Washington School Information Processing Cooperative, district technology coordinators, the Commission on Student Learning, the Department of Information Services, educational service districts, school administrators, teachers, classified staff, higher education faculty, business, and the state library.

When:

1994-95

Budget Request:

\$50,000



#5

**Resources:
Recommendation to Close the Gap**

Gap:

Not all school districts in the state are currently benefiting from partnerships between education and business and industry.

Recommendation #5:

It is recommended that the Superintendent of Public Instruction strengthen existing business education partnerships and establish new partnerships with business and industry through the Educational Technology Foundation.

Expected Result:

Increased collaboration among business and education and increased resources available to schools for technology.

Background:

There is an emerging recognition that K-12 education is an important key to the economic growth and health of the state. The Washington Business Roundtable recently cited technology skills as critical to each of the four state learning goals established in the Education Reform Act of 1993. State level partnerships between business and industry and education will ensure that all schools benefit.

Who/What:

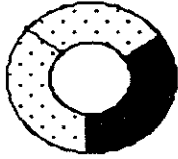
The Superintendent of Public Instruction will strengthen existing partnerships and encourage businesses and industries to forge partnerships with the state in the area of education technology.

When:

1994-95

Budget Request:

No additional cost.



#6

Implementation: Recommendation to Close the Gap

Gap:

Technology is recognized as an essential tool in the contemporary work place yet less than a third of the K-12 students in Washington State regularly use technology in the learning process.

Recommendation #6:

It is recommended that the 1994 Washington State Legislature appropriate funds to the Superintendent of Public Instruction to work with the school districts, schools, educational service districts and higher education institutions in coordinating technology-based curriculum projects in classrooms across the state.

Expected Result:

Students will be engaged in technology-based programs, exemplary practices will be modeled, educators will receive inservice and ongoing support across the telecommunications network and students will have access to on-line resources.

Background:

In order to effectively use technology in classrooms new instructional strategies, new classroom configurations and new uses of time and resources must be possible.

Who/What:

The Superintendent of Public Instruction will work with school districts, schools, educational service districts and institutions of higher education to identify projects, match the projects with classrooms across the state, award grants, provide ongoing support, assess/evaluate results and disseminate progress and results.

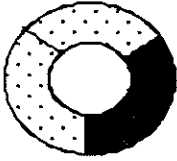
The classroom projects made possible through this recommendation will engage students in relevant technology-based activities while modeling exemplary instructional practices for their teachers. Teachers will be able to try out ideas in the classroom and talk on-line with other teachers who are implementing the same project to exchange ideas and strategies. This provides inservice with a real purpose, because it directly impacts the students.

When:

1994-95

Budget Request:

\$750,000



#7

Implementation: Recommendation to Close the Gap

Gap:

Washington communities are passing bonds and levies to support technology integration in schools, but are restricted in the use of these funds to capital equipment. This results in the installation of equipment without the requisite planning, training and accompanying software and/or media to ensure effective use.

Recommendation #7:

It is recommended that the 1994 Washington State Legislature enact legislation to allow districts to pass technology levies for technology planning, training, and media/software, as well as equipment, which are not subject to the 20% levy lid.

Expected Result:

Increased incentive for school districts to invest in all facets of technology planning, implementation, training, software and/or media, as well as equipment, without detrimental effects on existing programs.

Background:

The laws governing the use of levy and bond funds for schools do not accommodate the critical need for retooling schools. Schools are able to purchase equipment through the six-year levy without a negative impact on current programs but are unable to do the same for technology planning, training of staff and the purchase of software and media. Current laws do not recognize today's accelerating rate of change and the need for upgrades and replacement schedules nor do they recognize the need for additional staff to operate the equipment and networking systems.

Who/What:

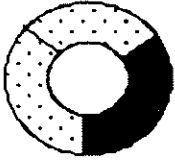
School district levies which are strictly run to support technology planning, implementation, training and/or software and media will be exempted from the 20% levy lid.

When:

1994-95

Budget Request:

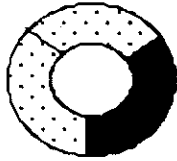
No additional cost.



#8

Implementation: Recommendation to Close the Gap

Gap:	The state learning goals must drive the use of technology in schools, not vice versa.
Recommendation #8:	It is recommended that the Commission on Student Learning include a requirement that "students demonstrate their ability to use current technology" in the essential academic learning requirements.
Expected Result:	All students will have an opportunity to develop skills in technology and to use technology to increase their level of academic achievement.
Background:	The 1993 Education Reform Act has defined student learning goals and has directed the Commission on Student Learning to write essential academic learning requirements with associated performance standards. If technology is woven into the Essential Academic Learning Requirements, schools will be required to provide opportunities for students to use technology for learning.
Who/What:	The Commission on Student Learning will consider including the appropriate use of technology in the essential academic learning requirements and in the associated performance standards.
When:	1994-95
Budget Request:	No additional cost.



#9

Implementation: Recommendation to Close the Gap

Gap:

Many teachers graduate from colleges of education without adequate skills to integrate technology into the classroom.

Recommendation #9:

It is recommended that the Superintendent of Public Instruction, the State Board of Education, the Professional Education Advisory Committee and higher education incorporate the goal of "proficiency in the educational use of technology" into the current study of performance-based teacher certification.

Expected Result:

Increased proficiency by teacher candidates and master's candidates in education in the use of technology in instruction, curriculum, assessment, administration and classroom management. This translates into a learning environment which is more efficient and responsive to the learners' needs (e.g., increased student academic achievement through: multiple learning styles, increased level of technology skills related to the work force, individual learning plans managed through technology, increased time for students through increased efficiency in administrative tasks).

Background:

The state needs new instructional, curricular, assessment and administrative models in the colleges of education which include the effective use of technology. Long term, this has implications for the colleges of education regarding the updating of their technology infrastructure, resources and staff development programs.

Who/What:

The Superintendent of Public Instruction, the State Board of Education, the Professional Education Advisory Committee, institutions of higher education and the Higher Education Coordinating Board will incorporate the goal of "proficiency in education technology" into the current study of performance-based teacher certification. A study will be conducted which assesses the current use of technology at colleges of education.

When:

1994-95

Budget Request:

\$50,000

Chapter 9

Phase II: Issues for Further Study

In recognition of the complexity of integrating technology into Washington's K-12 schools, the Education Technology Advisory Committee will address the following issues in the development of a comprehensive state technology plan for Washington's common schools:

State's Role

1. What is the role of the state in closing the identified gaps in education technology and assuring equity?

Strategies

2. Which of the following strategies would bring the best results: incentives; mandates; changing the system to remove perceived barriers; and/or building the capacity of the system to support K-12 education technology?

Sound Educational Reasons

3. How can the state ensure that education technology is based on improving students' learning? What connection should there be with other Education Reform initiatives?

Staff Development and Curriculum Integration

4. How can staff development and the integration of technology in curricula, instruction and assessment be systematic, equitable and appropriately assessed?

State's Role in Building Infrastructure

5. What resources should be provided by the state vs. the school district? Should the state provide, operate, maintain and/or upgrade the physical technology infrastructure for education?

Business Education Partnerships

6. What should the state do to encourage business and industry to work with education in the field of technology?

Leveraging Resources

7. What is the best way to align other resources with the focus of this plan (e.g., Educational Technology Centers, colleges of education, libraries, community groups)?

Statutory Barriers

8. Are there statutory barriers to the implementation of technology in schools and what are the trade-offs in their revision/deletion?

Advocacy

9. Given the national move toward an information highway, should the state serve as an advocate to ensure long-term access and training for education?

Legal Considerations

10. How will the state address equity, copyright laws, privacy issues and deal with students' accessibility of controversial resources on the information networks?

Appendix A

Engrossed Substitute House Bill 1209 Technology Sections

Chapter 336, Laws of 1993

Section 701. The legislature recognizes that up-to-date tools will help students learn. Workplace technology requirements will continue to change and students should be knowledgeable in the use of technologies.

Furthermore, the legislature finds that the Washington systemic initiative is a broad-based effort to promote widespread public literacy in mathematics, science, and technology. An important component of the systemic initiative is the universal electronic access to information by students. It is the intent of the legislature that components of sections 702 through 706 of this act will support the state-wide systemic reform effort in mathematics, science, and technology as envisioned by the Washington systemic initiative.

Section 702. Unless the context clearly requires otherwise, the definitions in this section apply throughout this chapter and section 705 of this act.

(1) "Education technology" or "technology" means the effective use of electronic and optical tools, including telephones, and electronic and optical pathways in helping students learn.

(2) "Network" means integrated linking of education technology systems in schools for transmission of voice, data, video or imaging, or a combination of these.

Section 703. (1) The superintendent of public instruction, to the extent funds are appropriated, shall develop and implement a Washington state K-12 education technology plan. The technology plan, which shall be completed by December 15, 1993, and updated on at least a biennial basis, shall be developed to coordinate and expand the use of education technology in the common schools of the state. The plan shall be consistent with applicable provisions of chapter 43.105 RCW. The plan, at a minimum, shall address:

(a) The provision of technical assistance to schools and school districts for the planning, implementation, and training of staff in the use of technology in curricular and administrative functions;

(b) The continued development of a network to connect school districts, institutions of higher learning, and other sources of on-line information; and

(c) Methods to equitably increase the use of education technology by students and school personnel throughout the state.

(2) The superintendent of public instruction shall appoint an educational technology advisory committee to assist in the development and implementation of the technology plan in subsection (1) of this section. The committee shall include, but is not limited to, persons representing: The state board of education, the commission on student learning, the department of information services, educational service districts, school directors, school administrators, school principals, teachers, classified staff, higher education faculty, parents, students, business, labor, scientists and mathematicians, the higher education coordinating board, the work force training and education coordinating board and the state library.

Appendix B

Engrossed Substitute House Bill 1209 Technology Update

Engrossed Substitute House Bill 1209 (ESHB 1209) was enacted by the Washington State Legislature as the 1993 Education Reform Act. This legislation included technology as one component, resulting in a biennial appropriation of \$4.5 million currently implemented to:

- extend the existing state infrastructure (e.g., additional routers, hubs on the state network to support Internet connectivity);
- support local school district initiatives through the Office of Superintendent of Public Instruction (OSPI) and the Educational Technology Support Centers (coordinated by OSPI, each of the nine educational service districts provide local schools with staff development, training, assistance with technology planning, networking consultation, technical assistance, preview of emerging technologies and up-to-date information on education technology);
- establish on-line curricular and instructional projects (educators will serve as moderators on-line, establishing curriculum projects on-line and helping other classrooms to take advantage of the network);
- establishing a state-wide, two-way interactive teleconferencing system through a partnership among OSPI, the Department of Information Services and the Educational Service Districts;
- development and implementation of a state education technology plan for the common schools of Washington State by OSPI with assistance from a statewide Education Technology Advisory Committee. The plan, as well as recommendations for equitably funding technology in the K-12 common schools, will be submitted to the Legislature by September 1, 1994. An interim plan with short-term recommendations is included in this document.

The state technology plan currently under development will extend and support these current state-level initiatives. The Phase I recommendations would augment and support these current technology initiatives.

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Executive Summary

Legislative Charge

The Washington State Legislature, through the 1993 Education Reform Act (ESHB 1209), mandated that a state technology plan for K-12 schools be developed by the Office of Superintendent of Public Instruction (OSPI), with the assistance of a statewide Education Technology Advisory Committee.

The Act shifted the emphasis in K-12 education from inputs (seat time) to four newly defined state learning goals. While there continues to be an emphasis by the state on the academic areas, the threads of critical thinking and problem-solving, communication, lifelong learning, integration of traditional academic and vocational experiences, school-to-work transition and performance-based assessment are woven tightly into the fabric of the reform.

Technology is critical to each of those threads. The Act clearly states, "The Legislature recognizes that up-to-date tools will help students learn" and that "workplace technology requirements will continue to change and students should be knowledgeable in the use of technologies."

Based on that context, the Education Technology Advisory Committee has worked closely with other education reform initiatives. In particular, the Advisory Committee has worked with the Commission on Student Learning to integrate technology into the essential academic learning requirements and with the Center for the Improvement of Student Learning through the statewide data and videoconferencing systems.

Technology and Education Reform

The state of Washington is at a crossroads with its K-12 school system. In 1993 the State Legislature found that "student achievement in Washington must be improved to keep pace with societal changes, changes in the workplace, and an increasingly competitive international economy." Based on that finding, the 1993 Legislature defined new state learning goals and set in motion the development of essential academic learning requirements, associated standards and a performance-based assessment system.

The success of that effort will, to a great extent, depend on the integration of technology in schools. Technology can assist educators to provide each child and youth an opportunity to learn which is unique to their learning needs and enables them to attain the four state learning goals. At the same time, technology and telecommunications can reach beyond the walls of the classroom to

"The Legislature recognizes that up-to-date tools will help students learn... workplace technology requirements will continue to change and students should be knowledgeable in the use of technologies."

1993 Education Reform Act

The Education Technology Advisory Committee has worked with the Commission on Student Learning to integrate technology into the essential academic learning requirements.

"I challenge every telecommunications company, school board, teacher, librarian and citizen of this country to connect and provide access to the National Information Infrastructure for every classroom, every library and every hospital and clinic in the country by the year 2000."

***Vice President Al Gore
(1994)***

bring the relevancy, richness of resources, school-to-work experiences, and connections with peers and experts which provide the kind of education envisioned in the 1993 Education Reform Act. The economic health and growth of the state of Washington depends on the work readiness and skill development of these youth.

Secretary Riley, U.S. Department of Education, testifying before the U.S. Senate Committee on Commerce, Science and Transportation on May 25, 1994, stated, "If we want to create a broad-based, well-educated workforce that has a capacity to use information to keep our economy growing, then we need to hook this future workforce into the NII (National Information Infrastructure) early."

Enhancing learning through technology and ensuring that students have the technology skills required for today's workforce requires more than just the access to equipment, services and networks. It requires learners who know how to ask probing questions; access and analyze sources of information; construct new meaning from the data; and then are able to effectively communicate their ideas to others. It requires educators and communities who use the technology to create enabling learning environments for all students. And it takes communities and policymakers who have the vision and courage to make the right choices for learners of the '90s.

Just as medicine, law, entertainment, agriculture, manufacturing, transportation, communications and service industries have embraced technology in order to remain viable as they forge their way into the 21st century, so must education. In this era of education restructuring, technology and telecommunications are catalysts toward the emergence of a new education system which truly meets this generation's economic, social, health, civic and family needs.

Technology Initiatives

This state technology plan is one of several technology initiatives launched by the Act. The others include the provision of:

- technology support to school districts through the Educational Technology Support Centers in each of the nine educational service districts (ESDs);
- the enhancement of the statewide data network through the establishment of eleven Internet hubs across the state;
- the provision of networking consultants for local schools;
- the establishment of the Washington Interactive Television system for videoconferencing (in partnership with the educational service districts and the Department of Information Services);
- the establishment of prototypes of on-line curriculum projects involving more than 300 classrooms; and
- an allocation of approximately \$20.61 per student to districts for "instructional materials and technology related investments."

In addition, the state continues other technology initiatives:

- A U.S. Department of Education grant for \$3.9 million to the Pacific Northwest Star Schools Partnership for distance learning;

- instructional television services for K-12 education;
- services through the Special Education Technology Center; and
- many, many creative, innovative initiatives in school districts, school buildings, school classrooms and communities across Washington.

State Framework

The Education Technology Advisory Committee approached this mandate from the legislature by conducting a gap analysis which established a vision for the state; analyzed the current state of educational technology in schools; identified gaps; and established goals and recommendations to bridge the gaps.

The intent of this State Technology Plan for the K-12 common schools is to provide recommendations which establish the state structures, strategies, alliances, funding mechanisms and common vision necessary to realize each student's learning potential, in part, through access and use of technology and telecommunications.

To ensure that all children have access to information and technology for learning, the state must take a leadership role.

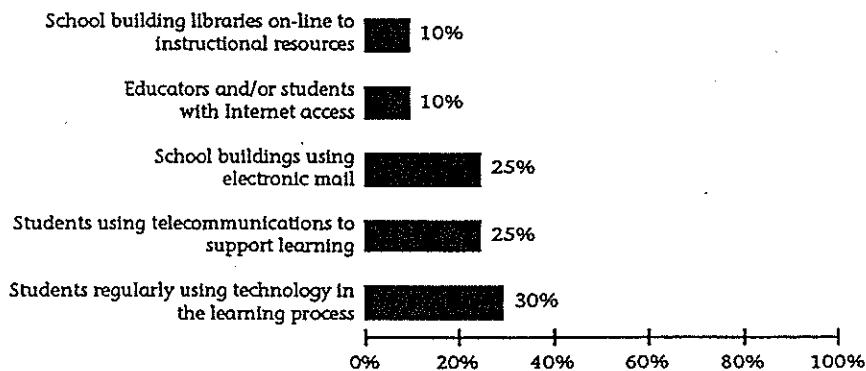
A Snapshot of Technology in Schools

Data on the Fall 1993 Statewide Technology Survey indicates both interest and commitment on the part of school districts to the integration of technology into the learning process:

- 55% of school districts have technology coordinators (most are part-time);
- 50% of school buildings have designated technology resource people (typically this is an added assignment to an already busy classroom teacher); and
- 80% of school districts are developing, implementing or revising a technology plan.

Despite many model projects and many exemplary technology initiatives in school districts across the state, technology has yet to be integrated into the learning process.

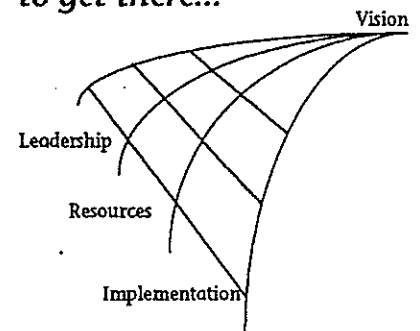
Technology and Telecommunications in K-12 Schools



Source: OSPI 1993 Statewide Survey

A Gap Analysis...

Understanding where you are, where you want to be and then strategizing how to get there...



Enhancing learning through technology requires more than just the access to equipment, services and networks, it requires new ways of teaching, new roles for learners, new learning goals, different uses of time and resources, and a strong support system for educators.

Consider...

The student in the Seattle School District who spends his/her evening at the community center finishing his/her research for a report on Jupiter by tapping into Internet via a computer station provided by the school district.

And...

The student in eastern Washington's Pullman School District who is the sound editor for the daily news show produced and broadcast through the school's cable system. This student daily experiences what it's like to work on a news team, juggling deadlines with levels of quality, imagination with technical limitations and the latest peer reviews with balanced coverage of news.

A Technology Vision for K-12 Students

The following vision serves as a basis for this plan:

"In a society increasingly dependent on information, a critical component of education is equitable and universal access to technology, media and information resources.

With these tools and the guidance of skillful educators, as well as community members, students take responsible roles in their own learning, and are actively engaged in creating learning environments as they think, solve problems and communicate in collaborative and interdisciplinary settings. Students emerge as lifelong learners, productive members of the work force, and contributing citizens."

Education Technology Advisory Committee

Technology and telecommunications are essential to the education of today's student both in the context of attaining the state learning goals and in his/her future economic viability in a technological age.

Effective use of technology will require students to be:

- information navigators,
- critical thinkers and analyzers using technology,
- creators of knowledge using technology and media,
- effective communicators using a variety of media,
- discriminating selectors of technology tools for specific purposes,
- technicians, and
- responsible citizens, workers, learners, community members and family members in a technological age.

Issues, Challenges and Opportunities

The plan to integrate technology into the K-12 education system must be systemic. That is, it must consider all issues and opportunities affecting today's schools including:

- education reform initiatives,
- the importance of equity issues,
- the key role parents and the community play in K-12 education,
- research which clearly demonstrates that, combined with appropriate teaching methods, technology and telecommunications do increase academic achievement,
- the importance of school-to-work transitions,
- the key role the K-12 system plays in the economic future of students as well as the state,
- privacy and security issues as telecommunications access increases,
- the critical need for public involvement and input into the educational change process, and
- the role telecommunications regulatory issues and business and industry play in shaping this new system.

This plan approaches the integration of technology into K-12 schools by weaving all of these challenges and opportunities into the proposed recommendations. This systemic approach is critical to the success of the plan.

Bridging the Gaps: Legislative Recommendations

Washington State has made great strides in education technology through both state level and local initiatives. These recommendations are proposed as interdependent components of a comprehensive plan which will result in increased educational benefits for all K-12 students.

The strategies employed support the common belief that significant systemic change can and must happen at the local level, but only through a combination of state leadership, alliances among all stakeholders, local empowerment, adequate resources and commitment through ongoing staff development, strategic planning and incremental implementation.

Bridging Leadership Gaps

- ***Recommendation #1: Integration of Technology into Educational Initiatives***

It is recommended that the OSPI, the Commission on Student Learning, the school-to-work initiatives and the Goals 2000 Committee consider technological implications and opportunities as this state's new education system is established. Furthermore, that the statewide Education Technology Advisory Committee (ETAC) serve in an advisory capacity in all matters pertaining to educational technology and information policymaking in K-12 for those groups; and that ETAC serve as an advocate for education in the telecommunications regulatory process. [1995-97: \$49,000]

- ***Recommendation #2: Partnerships, Alliances and Public Awareness***

It is recommended that the Legislature fund OSPI to launch alliances, partnerships and public awareness initiatives which gain broad-based public and private understanding, and support and funding for the integration of technology and telecommunications in K-12 education. [1995-97: \$600,000]

- ***Recommendation #3: Affordable Telecommunications Access for Schools***

It is recommended that the state assist K-12 school districts in securing affordable access to telecommunications services and equipment through: aggregated purchasing; establishment of K-12 education as a market through education and advocacy; support for education/community/business partnerships which prototype leveraging of resources; establishment of tax incentives for the high-tech industry to assist schools in securing affordable access; and legislative action to ensure K-12 access to channel capacity and production support through existing cable systems. [1995-97: \$2,619,900]

"Technology is increasingly vital to our economy. It is imperative that our children be prepared to move into the 21st century, and it is never too early to start."

*Representative
Tracey Eide
Washington State House
of Representatives*

"Leadership is having the imagination to see the possibilities, the intelligence to create the vision and the courage to make it happen."

*Education Technology
Advisory Committee*

"This framework requires the human resources, information, physical infrastructure, tools and support systems necessary to establish a new culture of learning through technology."

Education Technology Advisory Committee

- ***Recommendation #4: State Policies and Funding Strategies Which Reflect Schools' Technology Requirements***

It is recommended that all development, adoption and/or revision of policies and procedures for the common school system by the State Legislature, the State Board of Education, the Commission on Student Learning and OSPI reflect current technological requirements for learning. [1995-97 biennium: \$0]

- ***Recommendation #5: Levy and Bond Regulations Which Reflect Schools' Technology Requirements***

It is recommended that the State Legislature enact legislation to revise current constitutional and statutory language regarding bonds and levies to give school districts increased flexibility to effectively deploy, operate, upgrade and maintain technology and telecommunications in the K-12 education system. [1995-97 biennium: \$0]

Bridging Resource Gaps

- ***Recommendation #6: State Allocation to Districts for Technology***

It is recommended that the Legislature establish and fund an ongoing technology grant program through OSPI to grant funds to school districts to equitably support all students' learning through technology and telecommunications. Prior to receiving such grants, school districts would be required to develop, implement and assess technology plans focused on student learning. [1995-97: \$100,089,690]

- ***Recommendation #7: Regional Support for Educational Professionals***

It is recommended that the Legislature increase funding to OSPI and the Educational Technology Support Center program in the ESDs to:
1) expand services in networking to meet current demand, and
2) work with institutions of higher education and the Commission on Student Learning in developing and implementing new staff development models which support new education reform initiatives. [1995-97: \$1,457,000]

- ***Recommendation #8: Enhancing K-12 Education's Statewide Electronic Network***

It is recommended that the Legislature appropriate funds to OSPI for the enhancement, extension and continued operation of a state backbone (leveraging off all existing educational and governmental systems where possible) for the K-12 common schools across the state. And, furthermore, to connect schools to other learning resources such as public libraries, community and technical colleges and institutions of higher education. [1995-97: \$2,148,100]

- **Recommendation #9: Providing Electronic Destinations**

It is recommended that the Legislature appropriate funds to OSPI to support the conversion of data (text, video, audio, imagery, etc.) into electronic form to be made available to Washington K-12 learners at reduced rates. Priority will be given to in-state entities (e.g., universities, libraries, classrooms, museums, resource agencies). It is further recommended that the state secure rights to curricular resources deemed necessary by school districts (e.g., electronic access to an atlas, encyclopedias, archival series of images on the Holocaust, Civil Rights video images, etc.).

[1995-97 biennium: \$550,000]

Bridging Implementation Gaps:

- **Recommendation #10: Integrating Technology into the Curriculum**

It is recommended that the Legislature appropriate funds to OSPI to develop, implement and assess technology-based curriculum projects which support Washington State's educational reform in cooperation with school districts, educational service districts, the Commission on Student Learning, the Center for the Improvement of Student Learning and higher education institutions.

[1995-97 biennium: \$996,570]

- **Recommendation #11: Technology in Teacher Preparation Programs**

It is recommended that the Legislature appropriate funds to OSPI to pilot new models of training for prospective teachers, incorporating new technology-based instructional strategies and strong linkages between K-12 schools and state-approved teacher preparation programs. The pilots would be in partnership with the State Board of Education, the Higher Education Coordinating Board, the State Board for Community and Technical Colleges and institutions of higher education. It is further recommended that the State Board of Education and OSPI, with advisement from the Professional Education Advisory Committee (PEAC), incorporate technology in the current study on performance-based teacher certification.

[1995-97: \$646,100]

- **Recommendation #12: Information Policies**

It is recommended that school boards review current policies to ensure that they appropriately address policy issues related to technology and telecommunications. And, that the Legislature provide funds to OSPI to coordinate the development and dissemination of model information policies related to technology and telecommunications for local school boards. Policy issues include: intellectual freedom, acceptable use of telecommunications services, privacy, security and confidentiality of data, etc.

[1995-97: \$150,000]

"This plan is a blueprint for technology in Washington K-12 schools. With it we can move intelligently to bring technology to all our state's students and classrooms."

*Senator Dwight Pelz
Washington State Senate*

"A systems approach is required to take full advantage of the learning possibilities technology brings to education."

That means that technology should not be an add-on, but rather an integral part of the way learning is accomplished at the student, educator, building, district, community and state levels."

*Education Technology
Advisory Committee*

Summary

"It is time for the schools to invest in technology... schools (should) seize on the promise of new technologies to increase productivity, enhance student learning and expand learning time."

*1994 Prisoners of Time Report
National Education Commission on Time and Learning*

"With intelligent, thoughtful integration into the K-12 education system, technology and telecommunications can serve as levelers and equalizers, bringing all children new opportunities to learn."

*Judith A. Billings
State Superintendent of Public Instruction*

Technology and Education Reform

The 1990s represent a "window of opportunity" for significant education reform which will not be possible without the use of technology and telecommunications. In many ways, education reform is necessary because of technology. With the depth of change technology has caused in political, social, cultural, environmental and economic areas, the National Education Commission on Time and Learning suggests that it is time for the schools to "invest in technology... schools (should) seize on the promise of new technologies to increase productivity, enhance student learning and expand learning time."

A Blueprint for Washington State

The recommendations in this plan are intended to provide a comprehensive, systemic approach to educational technology for those responsible for the K-12 common school system—the State Legislators, the Governor, the State Superintendent of Public Instruction, the State Board of Education, the Commission on Student Learning, professional associations, labor, business and industry, the community and technical colleges, institutions of higher education, parents, educators, students and community members—over the next six years.

Implementation of the recommendations is contingent upon available funding. The Superintendent of Public Instruction will aggressively seek funds to support this plan and to support linkages among and between all stakeholders in pursuit of the vision articulated by the Education Technology Advisory Committee.

Each one of these recommendations is absolutely critical for this comprehensive systemic state plan to benefit K-12 students in Washington State. Together these recommendations form a systems approach to improving learning through technology and telecommunications. Successful implementation of this blueprint will require a strong alliance among all stakeholders, working together for the good of children and youth across this fine state.

Student Attainment of the New Learning Goals

Technology and telecommunications will serve as catalysts for the change in K-12 education outlined in the Education Reform Act of 1993. With intelligent integration into the K-12 education system, technology and telecommunications can serve as levelers and equalizers, providing each child and youth equitable opportunities to emerge from the Washington common school system as a productive worker, contributing citizen and responsible family member.

Fiscal Summary

Washington State has made great strides in education technology through both state-level and local initiatives. These recommendations will build on current initiatives to move Washington State toward the vision. Specific detail on each recommendation can be found in the Recommendations Section.

Recommendations	1995-97	1997-99	1999-2000
#1 Advocacy for Technology in Education Reform/Regulatory Issues	\$ 49,000	\$ 40,000	\$ 20,000
#2 Partnerships, Alliances and Public Awareness	600,000	600,000	400,000
#3 Affordable Telecommunications Access for Schools	2,619,900	2,500,000	1,000,000
#4 State Education Funding Which Reflects Technology	0	0	0
#5 Review of Levy and Bond Regulations for Technology	0	0	0
#6 School District Allocation for Technology	100,089,690	150,000,000	200,000,000
#7 Regional Support	1,457,000	1,400,000	1,400,000
#8 Enhancing the K-12 Statewide Electronic Network	2,148,100	1,800,000	\$1,200,000
#9 Electronic Destinations	550,000	1,550,000	550,000
#10 Integrating Technology into the Curriculum	996,570	1,500,000	1,500,000
#11 Integrating Technology into Teacher Preparation Programs	646,100	800,000	1,200,000
#12 Information Policies	150,000	75,000	75,000
Totals	\$109,306,360	\$160,265,000	\$ 207,345,000

Legislative Charge

The State Legislature charged the Superintendent of Public Instruction with the development of a state technology plan for the K-12 common school system.

The law states that the plan shall be developed, in cooperation with an advisory committee, to coordinate and expand the use of education technology in the common schools of the state and address at a minimum:

- (a) The provision of technical assistance to schools and school districts for the planning, implementation, and training of staff in the use of technology in curricular and administrative functions;
- (b) The continued development of a network to connect school districts, institutions of higher learning, and other sources of on-line information; and
- (c) Methods to equitably increase the use of education technology by students and school personnel throughout the state.

It also requires that the Superintendent of Public Instruction prepare recommendations to the Legislature regarding the development of a grant program for school districts for the purchase and installation of computers, computer software, telephones, and other types of education technology.

The recommendations shall address methods to ensure equitable access to technology by students throughout the state, and methods to ensure that school districts have prepared technology implementation plans before applying for grant funds.

This plan is not about technology alone, this plan is about learning!

***Judith A. Billings
State Superintendent
of Public Instruction***

"This technology plan is a blueprint for preparing Washington students to live, learn and work in the 21st century."

***Education Technology
Advisory Committee***

Process

In October of 1993 Superintendent Billings convened a 28-member Education Technology Advisory Committee to assist in the development of a state technology plan. This group, which represents a diverse mix of K-12 education stakeholders, has invested significant time and energy in the development of this plan.

The Committee's recommendations represent thoughtful analysis of the issues and include the careful synthesis of the information received through seven public hearings conducted to solicit comments and/or suggestions, and input from meetings with many high technology business and industry representatives in Washington State.

Approach

The plan that has been developed in response to this legislative charge is a blueprint for K-12 progress in readying students for living, learning and working in the 21st century.

The Education Technology Advisory Committee approached the development of the plan through a gap analysis. They developed a vision, assessed the current status of technology in Washington K-12 schools, analyzed current trends and issues and then developed recommendations to bridge the gap between what is and what ought to be in Washington State schools today.

The plan is based on strong beliefs that:

- the successful implementation of technology in schools is a long-term commitment and should be done in conjunction with education reform efforts focused on improved student learning;
- the state must take a leadership role in assuring equity of access to technology, media and telecommunications;
- change happens at the local level by informed, committed and supported stakeholders who must be integral to the implementation of the plan;
- state policies and procedures for educational technology should provide local school districts with flexibility within a state framework;
- ongoing planning and staff development is integral to the success of the plan;
- school districts will have to redirect and reprioritize existing dollars to sustain and support the use of technology for learning;
- funding beyond current levels will be required to re-tool schools and provide the ongoing technical and curricular support necessary for successful integration of technology into the learning process; and
- as school districts improve their technology infrastructure they will need guidelines in facilities design, standards and protocols for equipment and continued access to up-to-date information on emerging technologies.

The Superintendent of Public Instruction and the Education Technology Advisory Committee proudly present this plan to the Washington State Legislature.

Vision

for K-12 Education Technology in Washington State

"In a society increasingly dependent on information, a critical component of education is equitable and universal access to technology, media and information resources.

With these tools and the guidance of skillful educators as well as community members, students take responsible roles in their own learning, and are actively engaged in creating learning environments as they think, solve problems and communicate in collaborative and interdisciplinary settings. Students emerge as lifelong learners, productive members of the workforce, and contributing citizens."

*1993-1995
Education Technology
Advisory Committee*

Basic Principles

Five principles form the basis for the state plan:

1. Economic Viability is at Stake

In our rapidly changing world, the economic viability of communities and individuals depends on the ability to access information, build knowledge and solve problems. Technology plays a key role in this process and students must develop skills in its use.

2. Equitable, Universal Access is Essential

Now and in the future all learners and educators must have equitable and universal access to information and technology and be skilled in technology applications.

3. Communication Linkages are Critical

Communication linkages among all of the *stakeholders in a child's life are critical to the education and well-being of the whole child. Technology is a key element in establishing these vital linkages. Integration of technology in education should not diminish the privacy of individual students, teachers or families.

4. Technology is Essential to Education Reform

The use of technology is essential to the reform of schools through:

- increased access to information in a context constructive to learning;
- increased application of appropriate instructional, management and assessment tools;
- new strategies and tools which involve students in creating and producing meaningful knowledge; and
- greater relevance to the community and workplace.

5. Systemic Change is Required

Effective use of technology in schools in Washington State must be based on coordinated planning and funding efforts at the state, regional, and local levels. To effect change, factors such as training, support, and time must be addressed simultaneously.

*Stakeholders in this process include, but are not limited to: educators and support personnel from all levels, students, parents, community members, business and industry representatives, labor and union representatives, governmental agencies, the Office of Superintendent of Public Instruction, the State Board of Education, the Commission on Student Learning and the Legislature.

"Many businesses are drawing a strong linkage between technology-based education and economic development. They believe that a technology proficient workforce will improve the state's economic viability."

**Kathy Panfili
Washington
Roundtable**

Seven Essential Learnings for Technology

Effective use of technology will require students to develop new roles in learning, living and working. The following essential learnings for technology should be woven into the work of the Commission on Student Learning as they develop essential academic learning requirements, performance standards, and assessments for all academic areas.

1. **The student as information navigator.** The student recognizes and values the breadth of information sources, browses those sources, differentiates and selectively chooses sources, and retrieves appropriate information/data using all forms of media, technology and telecommunications.
2. **The student as critical thinker and analyzer using technology.** The student reviews data from a variety of sources, analyzing, synthesizing and evaluating data to transform it into useful information and knowledge to solve problems.
3. **The student as creator of knowledge using technology, media and telecommunications.** The student constructs new meaning and knowledge by combining and synthesizing different types of information through technology, telecommunications and computer modeling/simulations.
4. **The student as effective communicator through a variety of appropriate technologies/media.** The student creates, produces and presents ideas, stories and unique representations of thoughts through a variety of media by analyzing the task before him/her, the technologies available, and appropriately selecting and using the most effective tool(s)/media for the purpose and audience.
5. **The student as a discriminating selector of appropriate technology for specific purposes.** The student discriminates among a variety of technologies and media to extend and expand his/her capabilities.
6. **The student as technician.** The student develops sufficient technical skills to successfully install, setup and use the technology and telecommunications tools in his/her daily life, work situations and learning environments.
7. **The student as a responsible citizen, worker, learner, community member and family member in a technological age.** The student understands the ethical, cultural, environmental and societal implications of technology and telecommunications, and develops a sense of stewardship and individual responsibility regarding his/her use of technology, media and telecommunications networks, respecting historical context and enhancing cultural lineage with integrity and concern for truth.

"If time management through technology is becoming the currency of the 21st century, it is my hope that our educational system provides opportunities for all to become proficient in changing technologies."

Harry Petersen
State Board of
Education

The Fit with State Education Reform Initiatives

The Commission on Student Learning

The work of the Commission on Student Learning and the technology initiatives were authorized under the same legislation, the 1993 Education Reform Act. As such, the act specifically states, "the legislature recognizes that up-to-date tools will help students learn... workplace technology requirements will continue to change and students should be knowledgeable in the use of technologies."

A member of the Commission on Student Learning serves on the Education Technology Advisory Committee (ETAC) and a member of the ETAC serves on the Communications Subject Area Committee for the Commission. The Advisory Committee has closely followed the Commission's development of the essential academic learning requirements (currently in draft form) on Communications, Reading, Writing and Mathematics.

Since technology is not listed in statute as an academic area it is the recommendation of ETAC that the Commission weave technology into all academic areas. To facilitate that process, a subcommittee developed the seven essential learnings for technology (included in this report) and submitted those to the Commission as a basis for integration into the academics. ETAC also critiqued the drafts of the essential learnings and made specific recommendations as to how to integrate the technology essential learnings into those documents. Those recommendations will be considered as the Commission finalizes those areas.

In addition, the Advisory Committee recommended individuals with technology backgrounds to the Commission for membership on the new Subject Advisory Committees. The Commission has honored most of those recommendations with appointments.

One of the recommendations in this document is that the Advisory Committee serve in an advisory capacity to the Commission on Student Learning during the 1995-97 biennium. This will be particularly important as the essential learnings continue to be developed, standards are completed and the design of the performance-based assessment system is under consideration.

*The Education
Technology Advisory
Committee is working
with the Commission on
Student Learning to
weave technology into
the state's essential
academic learning
requirements...*

*that committee will act
in an advisory capacity
as the performance-
based assessment system
is designed.*

Vision Scenarios

These scenarios are intended to provide a picture in the mind of the reader of the powerful learning opportunities this plan will bring to all K-12 Washington students.

Consumer Protection

Kelly, Maria and Ng are engaged in checking out safety features and reliability of the newest toys for toddlers. This project was sparked through student participation in an on-site daycare program. As a part of their physics class, these students gather and analyze data about the toys. They use probes and other technologies connected to computers to check features such as strength of materials under different conditions and the accuracy and speed of toys under repeated testing.

They use wordprocessors, desktop video, camcorders and digital cameras to produce videotapes and publications which demonstrate their analyses of the various safety features to the toy manufacturers. These students have had the satisfaction of knowing that they made a recommendation to a toy manufacturer which ultimately was used to improve the safety of a toy.

Communication with the Community

In Ms. Jongejan's Yakima classroom children are gaining self-confidence in their own ability to influence the health of their environment. The class is actively involved in a community-based wetlands project in which students use wordprocessors to write letters to the community, correspond with practicing environmental scientists electronically across networks, access information on the electronic encyclopedia on CD-ROM, maintain a database on birds and animals on wetlands and use desktop publishing to prepare and publish reports for presentation to community groups.

During the last legislative session students conducted research on a bill regarding the salmon runs in Washington State and testified at a legislative hearing by joining a two-way interactive videoconference between Yakima and Olympia.

A Seamless World

George and Kimberly attend a project-oriented high school in Seattle. They applied and interviewed for a "job" on the school communications team and earned spots as editorial page editor and layout editor respectively. Being blind has not deterred George from actively participating in the project.

Using his computer, which is equipped with voice output and Internet access to newspapers, journals, an electronic encyclopedia and other information resources, he collects, analyzes, and synthesizes information for his editing. He is able to communicate

***Relevancy
in learning...***

***Civic responsibility
in learning...***

***Interfaces for
learning...***

*Critical thinking and
problem-solving in
learning...*

his thoughts and ideas with his classmates through Braille as well as standard print, and publishes it on-line for audiences to read and respond. Throughout the year they have been collaborating with schools in Mexico and Canada.

Together, the schools create a monthly newsletter on trade and economic issues. To get an article published in the newsletter, each school submits articles to a review board representing students from all three schools. The wires were burning this year as students researched, discussed and published on-line articles and editorials about the implementation of international trade agreements.

Info-Grazing to Save the Harvest

Melody, Wolfgang and Kim, three biology students whose parents earn their livings fishing for salmon, decide to investigate what can be done to bolster the declining salmon harvest in their area. Gathering in a research nook of the school's community resource center one afternoon they spend an hour tele-interviewing a manager from the state agency responsible for this issue.

The manager agrees to electronically link them documents outlining existing state plans and initiatives. They then begin info-grazing with their hand-held electronic devices. A user-friendly software program prompts them to pose clear questions. They ask for strategies that have proven effective elsewhere in the world where fishing is critical to the economy. Routed through a global electronic highway system, in moments they begin to note news stories, videos and resources and download them into their computers for later perusal. In a matter of hours they have expert testimony, field data and anecdotes from other fishing communities.

School-to-Work Transitions

Marge and Antony have recently received their Certificate of Mastery from their high school in rural eastern Washington. Both have opted to explore high-tech industry and international finance during their last two years of school.

*Work experiences
in learning...*

Today they had an interview with Assymetrix in Bellevue and one with the Seattle Trade Center, both via videoconference. When they do get connected with a company, most of their work will be via videoconference and communications across Internet with a variety of experts globally. The program they are developing is unique to them and involves one class at their high school, a class with a local agriculturalist who deals in international trade, a couple classes through the community college (also done electronically), and this internship with a company.

A local high school teacher, working with the students and their families, designs a learning experience using local community resources, a state pool of class offerings via telecommunications, and a cadre of experts from business and industry to meet the needs and career interests of the student.

Why Technology in Schools...

Research, Reform and Exemplary Practice

The K-12 schools no longer reflect today's society. Technology is pervasive in the contemporary home and workplace. When an electrical storm cuts the power in Redmond, Microsoft employees go home because the computer, fax, phone and network essential to their jobs are down. But visit a classroom in your neighborhood and chances are you won't find many of those contemporary workplace tools. What you probably will find is a 19th century classroom trying to prepare 21st century youth, and that dichotomy is reflected in the drop-out rates, youth violence and the lack of skills that deter our youth from succeeding in today's workplace.

As David Thornburg, a special advisor to the White House on educational technology, so succinctly states, "Schools must prepare our children for their futures, not this generation's past."

A 1992 report funded by the National Science Foundation, Computers in American Schools 1992: An Overview, found that "The U.S. and its major trading partners are in competition for high skills, high wage jobs. Critical in that competition is improving the techniques of our educational system and teaching mastery of the tools of the Information Age. Yet, compared to Austria, Germany and the Netherlands, American students are less computer-knowledgeable, their teachers get less training, and their equipment is more out-of-date."

The Washington State Legislature has recognized the urgency for reform in K-12 education. Technology and telecommunications are catalysts for educational change as well as tools for learning, productivity and discovery. Legislators expect students to emerge from the K-12 system as productive workers, contributing citizens and responsible family members. In today's technological age, students will not be able to reach these goals unless technology and telecommunications are integrated into the learning process.

Technology in Schools

A look around the nation and the state suggests three major reasons for technology in schools:

1. Research, prototypes and national/local surveys conclude that technology can play a critical role in students' successful attainment of the four state learning goals;
2. Economic trends as well as reports from business and industry clearly state that K-12 students' economic viability as they enter the workforce is dependent on their acquisition and application of technology skills; and
3. Current practice and business trends suggest that school systems can increase functionality and efficiency through technology.

"...most of this literature finds newer technologies to be either equivalent or superior to conventional instruction with regard to student learning..."

*The Office of Education Research,
U.S. Department of Education (1993)*

"There is substantial research literature that strongly supports ways in which computer-related technology improves schools."

*Vision: TEST
(Technology Enriched Schools of Tomorrow)
International Society for Technology in Education*

"...(teachers using technology) perceive a change in their expectations about student performance—they expect more of their students and can present more complex material..."

Karen Sheingold
Integrating Computers into Classroom Practice
Bank Street College
Columbia University

Student Attainment of the New State Learning Goals

Within this education reform context, the integration of technology into the learning process is neither simply to speed up the process of learning nor to just teach new technology skills. Rather, the intent of the integration of technology under the Reform Act is to add a catalyst and technological factor which, combined with other reform efforts, will help schools become learning environments which empower students to successfully attain the new state learning goals.

Technology and telecommunications can serve as the means to assist students in attaining the new learning goals established in Washington State:

- Electronic gateways for students and educators to access resources, classes, experts, peers, instructors and information that is timely, up-to-date and relevant to today's student.
- New and/or more accessible forms of media (visual, auditory, imagery, text, musical, etc.) and learning tools for students and educators to use in browsing, accessing, processing, analyzing, problem-solving, organizing, producing and communicating information, knowledge and wisdom.
- Increased alignment between the applications of technology in the schools with those of the contemporary workplace.
- Improved learning environments which engage students in self-directed, guided activities in which the skills of teaming, collaboration, critical thinking and communication are learned and applied, connecting a framework of academics with meaningful, real-life experiences for students.

New State Learning Goals

The goal of the Basic Education Act for the schools of the state of Washington is "to provide students with the opportunity to become responsible citizens, to contribute to their own economic well-being and to that of their families and communities, and to enjoy productive and satisfying lives."

The four state learning goals are to:

1. Read with comprehension, write with skill, and communicate effectively and responsibly in a variety of ways and settings;
2. Know and apply the core concepts and principles of mathematics; social, physical, and life sciences; civics and history; geography; arts; and health and fitness;
3. Think analytically, logically, and creatively, and to integrate experience and knowledge to form reasoned judgments and solve problems; and
4. Understand the importance of work and how performance, effort, and decisions directly affect future career and educational opportunities.

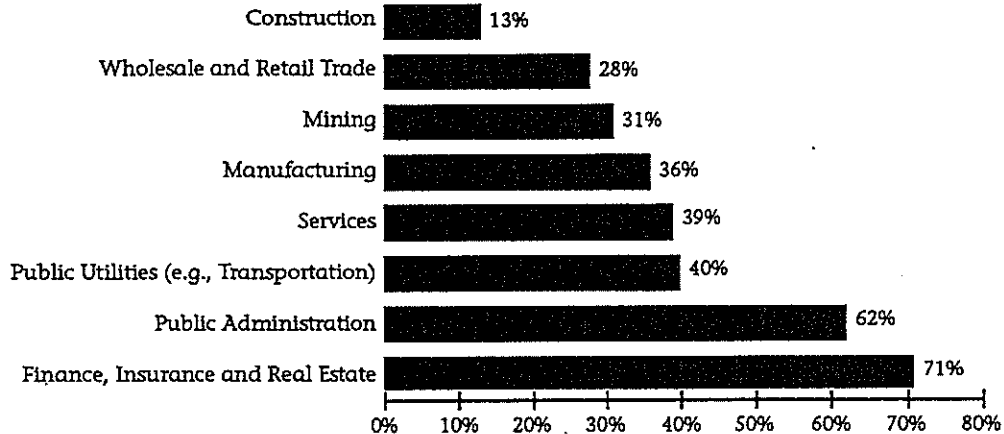
- Tools and techniques which enable educators to design and implement a performance-based assessment system.
- Shifting the roles of teacher and student to provide more independent work by the student and more coaching and facilitating by the teacher.
- Learning tools which enable educators to provide multiple learning approaches to meet the needs of individual children and youth.

Further analysis of the educational research in technology for learning is included in the appendix of this report.

Economic Viability of Washington's Future Workforce

Emerging technologies have significantly changed the American way of life and, even more significantly, the corporate culture of American businesses and industries. Increasing numbers of workers are using technology as a part of their everyday work life.

Percent of workers using computers on the job by industry



Bureau of Census 1989

Examples abound. The Boeing 777 was designed and tested strictly through computer-modeling; "dark" factories (without people, therefore without the need for light) manufacture products using robotics exclusively; and eastern Washington farmers compete on world markets by carefully tracking production and crop prices and monitoring watering schedules via technology.

The American Electronics Association (AEA) contends that "today's workplace requires a different approach." The AEA suggests that "to stay on top in increasingly competitive markets... employers need to tap the full range of skills and talents within their workforce. Workers need to know how to use technology, analyze and fix complex problems, and improve production processes."

Just as business and industry have different requirements of workers, the 1993 State Legislature enacted new learning goals for today's K-12 students (listed on opposite page). Independent learning, critical thinking and communication skills are what business and industry are seeking in employees. The student today who has a strong background in only the three traditional "Rs" is prepared for yesterday's workforce. Without further training such individual's resume will not get him/her interviews for careers in the information age workforce.

"Our present education system does not prepare students to enter a workforce that has been drastically altered by the globalization of commerce and industry, and the explosive growth of technology on the job."

***The SCANS Report
1991 Secretary's
Commission on
Achieving Necessary
Skills, U.S. Department
of Labor***

“...to stay on top in increasingly competitive markets employers need to tap the full range of skills and talents within their workforce. Workers need to know how to use technology...”

American Electronics Association (1994)

Records of students' products and performances on the essential academic learning requirements can be captured through visual images, full-motion video, audio, text and graphics and stored digitally for retrieval at will.

The challenge to schools in preparing students for a successful transition from school-to-work is multifaceted. Technology and telecommunications are part of the solution. In addition to critical thinking and problem-solving skills, students must understand and be able to use productivity and information accessing tools. Telecommunications also provide communication channels through which students can access desired courses, learn from expert instructors, interact with peers and/or experts, demonstrate expertise, and gain work experience from a distance.

Increased Efficiency and Functionality of Today's Schools

The business side of education includes fiscal management, administration, personnel management, facilities management, transportation support, student records, assessment and accountability reporting.

Most Washington schools are currently using technology and telecommunications to maintain fiscal and student records as well as manage other areas of school administration. The Washington School Information Processing Cooperative reports that 277 of the 296 school districts are members of the cooperative and others are using alternate systems.

As the Washington State Commission on Student Learning begins the development of the performance-based assessment system, technology must be a critical design factor. Emerging technologies and telecommunications enable educators to capture performance-based data in forms never before available. Records of students' products and performances on the essential academic learning requirements can be captured through visual images, full-motion video, audio, text and graphics and stored digitally for retrieval at will. These possibilities as well as the issues of privacy, security and confidentiality must be addressed as this new performance-based system is designed.

In addition, school personnel must be provided with the tools, training and support necessary to become as skilled as their business contemporaries in the use of technology, media and telecommunications for communication, administration and management of resources.

State of the State

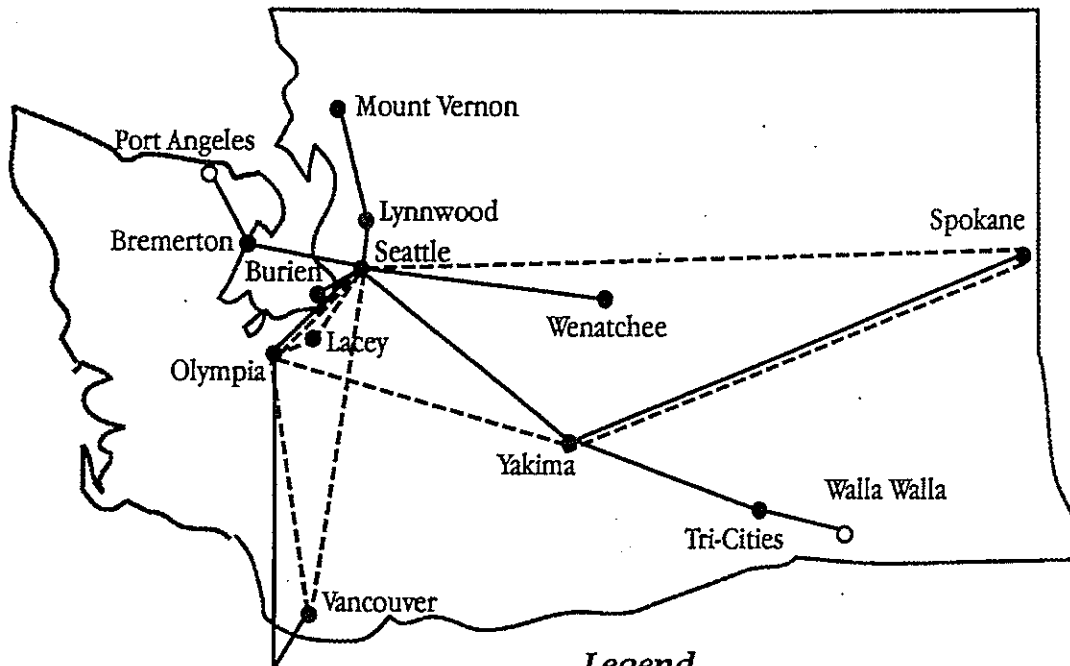
Current Initiatives and Accomplishments

A current assessment of the state confirms that educators and citizens in Washington State are committed to improving student learning through technology and are making progress, yet have a long way to go.

- Since 1989, over \$164 million in technology bonds and levies have been passed by voters and used at the local level for technology in schools.
- Nearly 80% of Washington State school districts are now implementing a technology plan or are developing or revising a technology plan.
- Over 640 of the 1,800 Student Learning Improvement Plans submitted to the state by school buildings in the spring of 1994 include technology staff development and/or planning.
- The regional NCCE (Northwest Council for Computers in Education) conference for educators registered over 2,600 participants last spring, with nearly 3,000 expected at the 1995 spring conference.
- During the last year, over 50 of the 296 school districts established routed (direct line) connections to Internet for curriculum and instruction purposes through the state network. Districts are beginning to install networks which connect classrooms and learning centers to the state network.

Despite these efforts, technology is not an everyday learning tool for the majority of K-12 students in the state. This section of the plan outlines current initiatives as well as challenges, issues and opportunities before K-12 educators in the area of technology, media and telecommunications.

Technical Infrastructure: K-12 Education



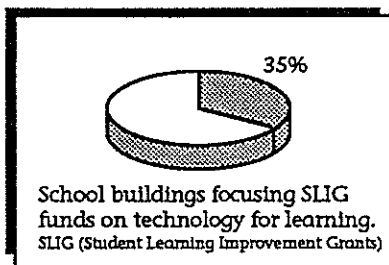
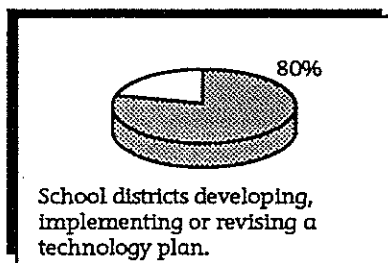
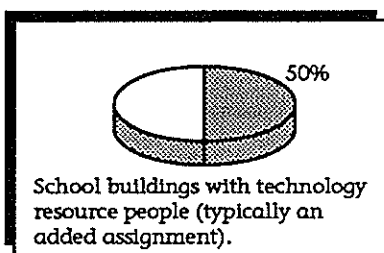
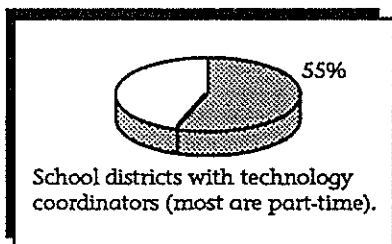
Legend

- T-1 Backbone for WEdNet
(Washington Education Network)
- - - Digital Transport System
(Operated by Department of Information Services)
- Washington Interactive Television
Videoconferencing Sites

Current Technology Initiatives/Status Quo

A Snapshot of Technology in Schools

Data on the Fall 1993 Statewide Technology Survey indicates both interest and commitment among school districts to the integration of technology into the learning process:



Source: OSPI Data

Despite those efforts, many model projects and exemplary technology initiatives in school districts across the state, technology and telecommunications have yet to be integrated into the learning process.

A 1993 statewide survey of districts indicates:

- Less than 33% of K-12 students use technology regularly within their learning environment;
- Less than 25% of school buildings use electronic mail;
- Less than 10% of educators and/or students have Internet access;
- Less than 25% of students use telecommunications access to support learning; and
- Less than 10% of school building libraries are on-line.

To ensure that all children have access to information and technology for learning, the state must take a leadership role.

Less than 33% of Washington State students use technology regularly within their learning environment.

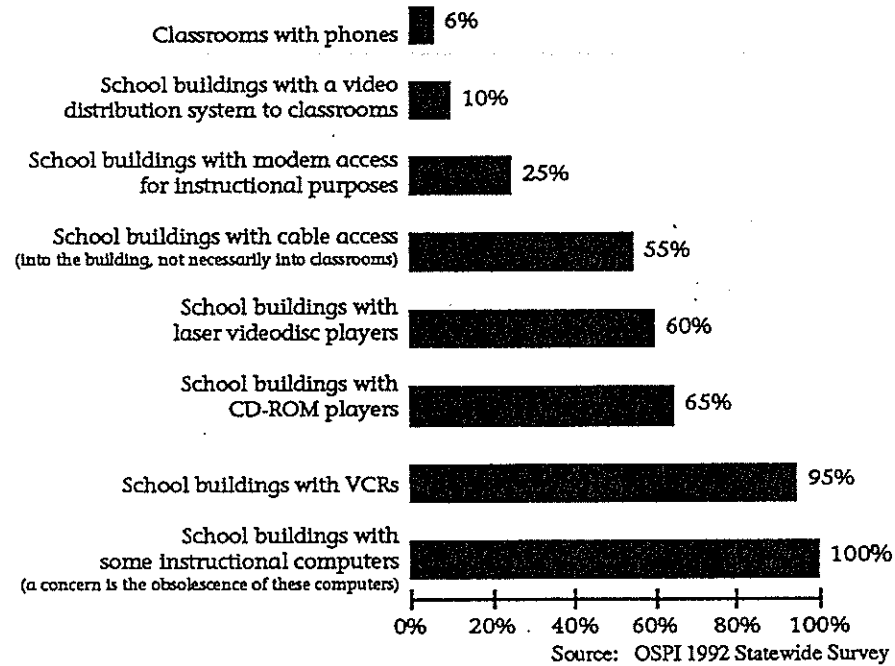
"...compared to Austria, Germany and the Netherlands, American students are less computer-knowledgeable, their teachers get less training, and their equipment is more out-of-date."

Computers in American Schools 1992: An Overview
A study funded by the National Science Foundation

Equipment and Networking in Schools

A statewide technology survey of school buildings is conducted every two years by the Office of Superintendent of Public Instruction. The 1994 statistics will be available in late December of 1994. The following statistics are from the fall of 1992:

Equipment and Networking in K-12 Schools



Most K-12 students in Washington are not regularly using technology in school.

While the statistics indicate the presence of technologies in most buildings, there is not the critical mass of equipment necessary to engage students in significant learning activities using technology, nor is there the trained staff necessary to effectively integrate the use of the technology into the curriculum.

A 1993 national study funded by the National Science Foundation indicates that "Computers in America's classrooms are often outdated. American students have been technologically shortchanged."

Leadership

The Superintendent of Public Instruction, in cooperation with key school districts and the educational service districts, continues to provide proactive state leadership through legislative requests, information exchanges, conferences, technology-based classroom pilots, partnerships, grant writing and, in cooperation with the Center for the Improvement of Student Learning, timely information dissemination.

The Educational Technology Section at OSPI is collaborating on a public awareness initiative for technology with the Goals 2000 Committee and will continue to promote the improvement of student learning through the Goals 2000 projects in the state.

Technology Initiatives: 1993 Education Reform Act

The Washington State Legislature, as a component of the 1993 Education Reform Act, allocated \$4.5 million to the Superintendent of Public Instruction for K-12 technology initiatives. Those initiatives are as follows:

- **State Technology Plan.** The Superintendent of Public Instruction was charged with the responsibility of developing this state technology plan for the K-12 common schools of the state of Washington. The Education Technology Advisory Committee worked on the plan from October 1993 through August 1994 to submit the completed plan to the legislature in September 1994.
- **On-Line Curricular Projects.** The Office of Superintendent of Public Instruction (OSPI) is partnering with the ESD Educational Technology Support Centers in establishing eight on-line curriculum projects involving over 300 classrooms from across the state. Chosen from over 65 applications submitted in response to a statewide Request for Proposal, the eight projects are: It Ought to be a Law, Media as a Persuasive Force, Dinosaurs in Modern Times, Native American Nations, International Poetry Guild, 100% Weather Proof, the Best of Washington, and Making History Real. Several of these projects were piloted last spring. The 300 classroom teachers attended training sessions during the summer and are involving their classes in the projects during the 1994-95 school year.
- **Regional Support.** Nine Educational Technology Support Centers have been established at the educational service districts to provide technology inservice, networking consultation, technical support and other related services to schools and school districts. This network of centers is coordinated by the Office of Superintendent of Public Instruction. Launched last fall, they provided the following level of service to school districts and educators between January and June of 1994:

Educational Technology Support Center Services:

305	Inservice Classes (2,155 hours)
6,179	Class Attendees
27,452	Class Contact Hours
520	Network Consultant Hours Provided
516	Staff Development Hours Provided
7,931	Event Contact Hours Provided
2028	User Group Contact Hours
675	WIT Contact Hours
788	Network Planning Hours Provided
246	Other Consulting Hours Provided
570	Technology Planning Hours Provided
2,639	Consulting Hours Provided
70	Satellite Downlink Contact Hours

The ETSC program established the Technology Action Planning Institute, launched in August 1994, to assist school districts statewide with long-range technology planning.

Students in over 300 classrooms are using the Internet in learning projects this fall, sharing data, interviewing experts, publishing their reports and communicating with their peers across the state.

Internet Message:

"Computers have given me the opportunity to do work and projects in a whole new way. I incorporate sound, text, graphics, scanned images, short clips and my own pictures. It turns the ordinary into the extraordinary and I owe it all to my teacher, Mrs. Gill."

*Stephen Perry
Student, Age 13
Kelso School District*

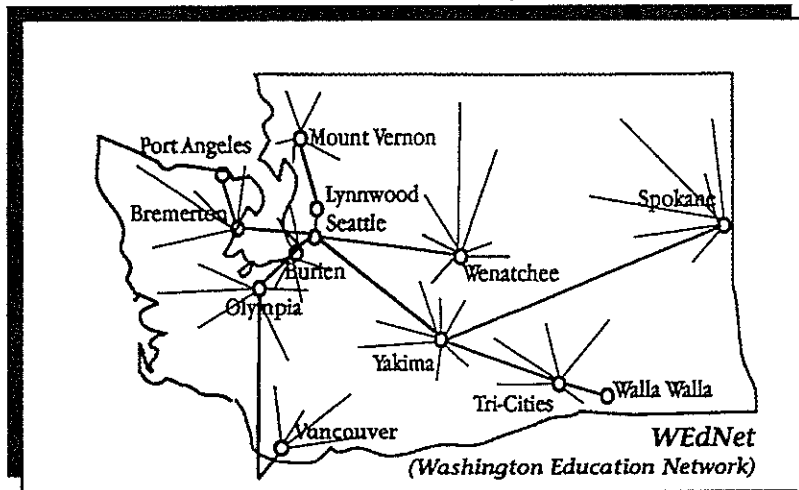
In less than a year over 50 school districts, representing more than 300,000 students, have installed routed connections to the Internet.

The next step is getting that connection to Internet into the classroom.

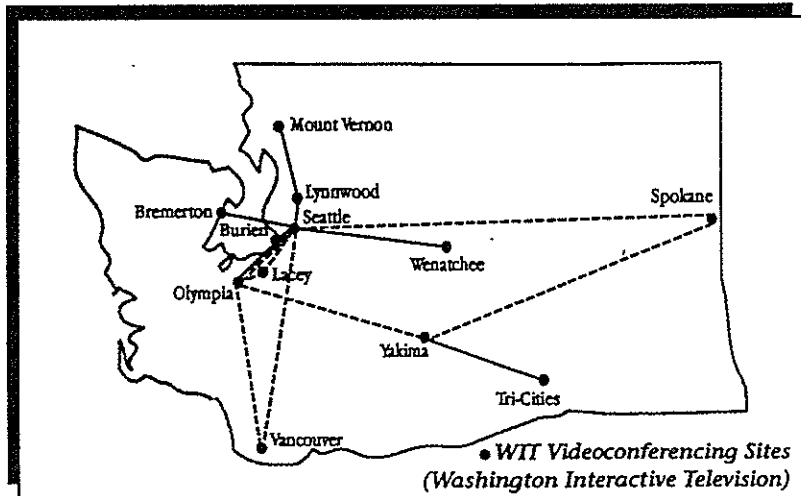
A unique partnership among OSPI, the Department of Information Services and the ESDs is leveraging resources to provide new videoconferencing services to clients.

- **Enhancing the State Backbone.** The Washington School Information Processing Cooperative has increased the capacity of their administrative network to carry instructional traffic. The Washington Education Network (WEdNet) now provides access to the Internet for member schools.

The number of school districts with routed (direct line) connections to the Internet numbers now stands at approximately 50, representing approximately one-third of the students in the state of Washington. It is then the responsibility of the district to network the classrooms, libraries, offices and building to take advantage of this connection to the state backbone. Through such networks students could maintain electronic portfolios, interact through electronic mail and access software and resources from virtually anywhere on the school campus.



- **Statewide Video Teleconferencing.** The Office of Superintendent of Public Instruction has partnered with the nine educational service districts and the Washington State Department of Information Services to establish and operate the Washington Interactive Television (WIT) system. This is a statewide, two-way, interactive videoconferencing system.



Special Education Technology Center

The Washington State Special Education Technology Center, located at the Ellensburg School District in central Washington, provides technical assistance, staff development, inservice and preview of special adaptive devices. The center is supported by the Office of Superintendent of Public Instruction through a contract with Educational Service District 105. Through the center, special needs children and youth learn to use technologies which enable them to communicate and learn in ways never before possible.

Instructional Television

The public broadcast stations in Washington State provide instructional television services and on-line telecommunications services to 125 subscribing school districts, impacting 411,000 students and 29,000 educators. Seven hundred twenty hours of programming are provided annually.

The local cable companies have provided free cable drops to the majority of the schools in cabled franchises. Several of the cable companies also provide educational programming and data services to schools at minimal cost.

Local Implementation

Pioneering school districts are successfully planning, implementing and funding technology initiatives. For example:

- The Onalaska School District in southwest Washington has dedicated local funds to network their entire school campus, enabling students to maintain electronic portfolios, interact through electronic mail and access software and resources from virtually anywhere on the school campus.
- Another pioneering district is Everett School District just north of Seattle. With the successful passage of a \$15.6 million technology levy (over six years) they are able to implement a plan to install local area networks interconnecting classrooms, learning centers and administrative offices within buildings and wide area networks interconnecting buildings to the state backbone. At the same time this district is carefully integrating the use of technology into the academic areas through curriculum development, software acquisition and extensive staff training.
- In Wenatchee science students study entymology out-of-doors with nets to collect specimens, and in the classroom checking the Hypercard stack on insects to identify their specimens. Through the district-wide network they electronically search the encyclopedias and access the Internet to check in with an entymologist at a local university on migratory patterns of specific insects. This class is truly beginning to integrate technology into the curriculum.

Pioneering districts across the state are carefully managing resources to bring technology to students.

For example, Onalaska, an economically depressed community, has taken the initiative to bring such resources as electronic portfolios to their students through a community-supported fiber-based network.

Pioneering districts across the state are bringing relevance, resources and job skills to their students through technology and telecommunications.

The Pacific Northwest Star Schools Partnership recently received a \$3.9 million grant for distance learning.

- Both Issaquah School District and Olympia School District are nationally renowned for their innovative programs in which students design, implement and operate the district network for credit in a unique class. Learning and teaming with classmates, under the direction of a qualified instructor, these students are involved in a very successful program which combines academic concepts with real-life application.

These are just a few of the many, many exemplary programs across the state which are providing rich learning experiences for children and youth through technology, media and telecommunications. One of the intents of the Washington State Technology Plan for K-12 Schools is to leverage those experiences through exchanges and partnerships among schools.

Distance Learning

Since 1990, the Pacific Northwest Star Schools Partnership has received \$16 million in federal grants to provide distance learning to schools in the five northwest states. The partnership will use the 1994-96 grant award of \$3.9 million to transition to compressed video technology, offer new programming for students and new inservice courses for educators, add new schools as downlink sites and begin working with the Pacific Islands. Educational Service District 101's STEP (Satellite Telecommunications Educational Program) system in Spokane partners with RXL Communications/Pulitzer as the hub for the five-state partnership between Washington, Idaho, Alaska, Montana and Oregon state education agencies.

Fifteen percent of the school buildings in the state of Washington have satellite reception capabilities with 1,242 Washington students currently enrolled in full courses via satellite. Educational programming is originated via several uplink sites including ESD 101, the Washington Interactive Television studio in Lacey, the KCTS/9 mobile uplink in Seattle and the University of Washington.

A State Backbone/Regional Data Centers

The Washington School Information Processing Cooperative (WSIPC), in cooperation with the Regional Data Centers located in the educational service districts, has increased the capacity of their administrative network to carry instructional and curricular traffic.

WSIPC continues to provide fiscal and student record services to schools for the 277 (out of 296) school districts connected for administrative services. The instructional component was previously referenced under the section Enhancing the State Backbone. Many of the data centers are working with the Educational Technology Support Centers to provide districts with dial-up capacity to Internet, until more direct connections can be established.

The Landscape

Issues, Challenges and Opportunities

Technology has the potential to serve as the catalyst for the educational change the public is seeking. To make that happen will require a broad view of issues, challenges and opportunities and action by education, business and industry, government and the community at large.

That means that education must look beyond the immediate issues of schools and begin to collaborate more closely with stakeholders. As telecommunications linkages become more critical to learning, educators must become more influential in that market. Equitable access to information and resources is at stake, with the potential of increasing the distance between the haves and the have-nots unless action is taken.

As electronic resources become available it is important that policymakers review and revise policies and procedures to reflect technology. These policy changes can increase students' learning options while maintaining high educational standards, ensuring equity of opportunity for all students, and protecting the rights of all citizens in this new technological arena.

As Washington State's new education system is designed decision makers should understand and use the potential of technology, media and telecommunications. That translates into understanding the issues, meeting the challenges and taking advantage of the educational opportunities in the technology and telecommunications arenas.

Technology will play a key role in ensuring equitable access to educational opportunity for all students.

Community approaches to building telecommunications infrastructure leverage limited resources.

To take full advantage of the possibilities technology brings to K-12 education will require systemic change. Technology must be woven into other initiatives in the state to collectively improve the quality of the educational experience for K-12 students.

Equity Issues

It is the paramount duty of the state of Washington to ensure a quality education for all children in the common school system. As the state transitions to a performance-based assessment system focused on student attainment of the four state learning goals, it will be critical that all children be provided an opportunity to learn. Technology will play a key role in ensuring equitable access to educational opportunity.

Systems Approach

Enhancing learning through technology and ensuring that students have the technology skills necessary for today's workforce requires more than just the access to equipment, services and networks. It requires learners who know how to ask probing questions; access and analyze sources of information; construct new meaning from the data; and then are able to effectively communicate their ideas to others. It requires educators and communities who use the technology to create enabling learning environments for all students. And it takes communities and policymakers who have the vision and courage to make the right choices for learners of the '90s.

Community Connections

Schools are the cornerstones of their local communities. In these times of diminishing resources and growing needs it is critical that all stakeholders work with schools to ensure leveraging and sharing of resources and decision making to ensure collaboration and cooperation among all entities. Community approaches to building telecommunications infrastructure leverage limited resources.

Privacy and Access Issues

Recent and anticipated growth in the capacity of public agencies to collect, store, process, transmit and report data electronically has created some public concern over privacy issues. As technology is integrated into the K-12 education system it will be critical that the privacy of students and their families, as well as that of staff, be protected and that the data on the system be secure.

Beyond the confidentiality and security of data is the determination of use (what data may be collected and under what conditions are responses mandatory or voluntary), access (who has data access rights, under what circumstances, and for what purposes); and ownership (who owns data and who has a legitimate voice in determining the use of such data). Information policies and standards such as those by the Family Education Rights and Privacy

Act of 1974 (FERPA) attempt to protect individual confidentiality while ensuring adequate access for monitoring and policy planning. As Washington State develops a new performance-based assessment system, an accountability system and student and educator access to Internet, it will be critical that appropriate policies and/or standards are implemented.

Public Awareness

The general public is not aware of the current initiatives and accomplishments of educators and students who are effectively using technology, media and telecommunications in schools across the state of Washington today. Nor is the public generally aware of how critical it is to students' economic futures that they become aware of and be able to skillfully and intelligently use technology. As a result, the general public may be missing an opportunity to leverage the technology resources of the K-12 sector for their community, and the youth in their communities may be missing out on opportunities other communities offer through technology in schools.

Timing

The power of technology for schools is in its ability to bring resources and innovations which transform schools into learning environments which match the new state learning goals and essential academic learning requirements.

Technology in schools without education reform negates the power of the innovation. Education reform without technology is like remodeling a summer house into a Frank Lloyd Wright using only a chainsaw and hammer while more sophisticated but available tools lie untapped.

Telecommunications Regulatory Landscape

With increased need for telecommunications services in schools comes increased need for investment both in initial installation of equipment and in ongoing connection fees. Schools generally do not have the expertise to plan for efficiencies in design of networks, nor expertise in negotiating their way through the telecommunications regulatory landscape to secure low service charges.

The regulatory issues for telecommunications companies (telephone, cable and wireless) are complex and ever changing. Currently congressional action on preferential rates for schools nationally is pending. Public utility commissions across the nation are beginning to follow Washington's lead and move toward a more competitive marketplace. The challenge before the education community is to become a market force through increased understanding of the issues, aggregation of buying power, business/education partnerships and strong negotiations from an informed vantage point. In addition, education technology leaders should serve as advocates for education in this arena.

The public is generally not aware of the potential technology and telecommunications bring to their students and their communities.

The power of technology for schools is in its ability to transform schools into learning environments which match the new state learning goals by bringing resources and innovations to the learner's desktop.

Collaboration between the OSPI technology section and the Center for the Improvement of Student Learning will continue as the Internet system connects more and more educators and parents, the on-line curriculum projects are fully implemented and video production on exemplary models continues.

The emphasis on improving student learning through technology and telecommunications in the Goals 2000 legislation clearly supports that same emphasis by Washington State Legislators in the 1993 Education Reform Act.

The Center for the Improvement of Student Learning

The technology section at the Office of Superintendent of Public Instruction has worked closely with the Center for the Improvement of Student Learning, with a telecommunications supervisor assigned half-time to the Center. Collaboration includes:

- joint design and production of the video "Educational Restructuring: Glimpses of the Future;"
- purchase and installation of the Internet hubs across the state by the technology section to support an educational communications network which is critical to the Center's work;
- installation and operation of a "gopher server" at OSPI on the network which serves as a hub for electronic communication with educators, parents and community members;
- implementation of eight on-line curriculum and instruction projects which serve as innovative models and testbeds for the Center; and
- design and installation of the Washington Interactive Television (WIT) system which is used by the Center for interactive videoconferencing with others around the state.

Collaboration between the technology section and the Center will continue as the Internet system connects more and more educators and parents, the on-line curriculum projects are fully implemented and video production on exemplary models continues.

Goals 2000 Initiative

Since technology is an integral part of the Goals 2000 Act, the technology section at the Office of Superintendent of Public Instruction and the Goals 2000 office plan to work in partnership. A member of the Education Technology Advisory Committee will be appointed to the Goals 2000 Committee and ETAC has offered to serve in an advisory capacity to that Committee.

The plan requires that Goals 2000 initiatives integrate technology into state plans. The Washington plan, recently approved by the U.S. Department of Education, included four major initiatives in technology:

- Public, education and business/industry recognition of and support for technology in education;
- Removal of regulatory, constitutional or statutory barriers which inhibit integration of technology in schools;
- Improvement of student learning through technology-based instructional strategies; and
- Increased electronic access to information by students, educators, parents and community members.

The major technology initiative funded through these federal dollars is a public awareness initiative scheduled to be launched in the spring of 1995. As Goals 2000 funds are granted to school districts, recipients will be asked to include plans for the integration of technology and telecommunications to support their school improvement efforts.

School-to-Work Transition

Technology will play an important role in school-to-work transition. In addition to the obvious use of technology in the contemporary workplace, technology and telecommunications may be the vehicle through which students in rural areas connect with business and industry for their work experiences.

The Education Technology Advisory Committee does have a member of the Workforce Training and Education Coordinating Board serving as a member. Over the past year the technology section has facilitated the development of several grant proposals for technology infrastructure. Each of those included economic development components and school-to-work features.

Student Learning Improvement Grants

Technology focuses were evident in 644 of the 1800 Student Learning Improvement Grant applications approved by OSPI in June/July of 1994. There is no requirement for inclusion of technology in this program so the conclusion drawn is that local educators recognize the potential technology brings to school improvement through planning and staff development efforts.

Another connection between technology initiatives and this grant program is the potential use of the staff development classes offered through the Educational Technology Support Centers in the educational service districts.

Technology and telecommunications may be the vehicle through which students in rural areas connect with business and industry for their work experiences.

The Gaps...

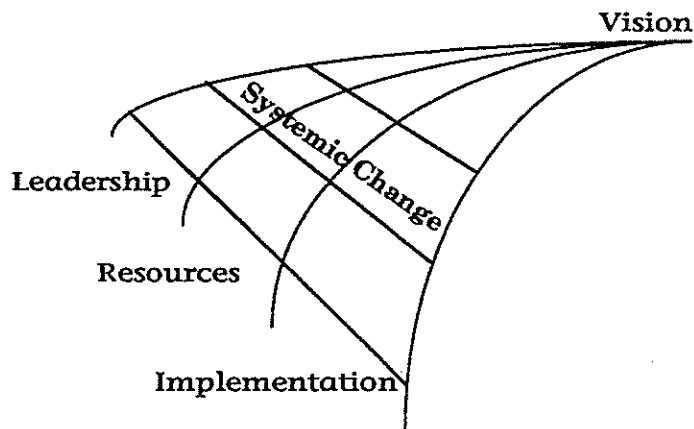
The Costs...

Despite the pioneering efforts in this state, there is much to be done. Washington State must ensure that common school students are achieving at world-class standards and that they are prepared to be productive members of the workforce.

The Education Technology Advisory Committee identified gaps in the education system which are preventing schools from providing the learning opportunities necessary for students to reach the technology vision.

The committee then identified the cost of implementing that vision at the classroom, building and district levels. The recommendations in this plan do not reflect the magnitude of the costs identified in this section. This is partially due to the recognition that money is only part of the solution and that significant change must accompany the deployment of technology to maximize the investment.

While the recommendations in this plan take an incremental approach toward implementation, the figures detailed in this section do reflect the true costs districts are facing in retooling schools.



"The twelve recommendations in this plan provide a blueprint for bridging these leadership, resource and implementation gaps."

Education Technology Advisory Committee

Leadership Gaps

The many entities which directly and indirectly impact K-12 education have neither a common vision for technology nor an agreed upon definition for equity with regard to technology. Closing this gap could align limited resources to help schools move forward with improving student learning as the driver for technology use.

There is a need for increased public understanding of the role and value of technology in schools. State regulations should be reviewed to ensure that schools are not facing unnecessary barriers. The state should provide coordination in protocols, standards, application of best instructional practices and benchmarks for planning and resource allocation as well as provide appropriate regulatory advantages for K-12 education. Closing these gaps help address issues such as equity, connectivity options, flexibility and smart planning, while maintaining local decision making and encouraging partnerships.

Resource Gaps

Lack of time and personnel are human resource gaps which inhibit quality planning, implementation, operation and evaluation of technology in schools. Staff development programs which truly meet the specific technology needs of students, educators and/or administrators are difficult to find. The lack of accessible information regarding best practices, exemplary programs, research and general information prevents educators from leveraging each other's successes.

The lack of equitable, universal access to equipment, technology-based instructional materials and on-line information is a barrier to reaching the vision. Today's school buildings are not "ready" to utilize technology (e.g., power, phone lines, wiring) and there is a lack of planning, budgeting and funding for support, maintenance and upgrading of equipment.

Implementation Gaps

The difficulty of schools in sustaining a long-term commitment to the implementation of technology is due, in part, to multiple priorities. Truly taking advantage of the technology requires real change in the way the business of education is conducted. Systemic change which impacts all children takes ongoing planning, sustained commitment to implementation across the curriculum, ongoing training efforts, continued upgrading and maintenance of equipment, ongoing assessment and evaluation and buy-in from all stakeholders. The lack of such a systemic approach is a major gap.

Framework for Bridging the Gaps

The identification of these gaps provides the basis for the recommendations in this state plan.

Bridging the Gaps...

Scenarios and Potential Costs: Technology and Best Practices at Work in the Classroom

Imagine the Community Connections...

As tired as Mona is from last night's tensions at home, she couldn't miss Tuesday, the only day her elementary school keeps the computer lab open for community members young and old.

During the regular school day Mona often stays in at recess with her friend Alisa to practice her math. High wire Logic software lets her sort shapes according to patterns and colors, reinforcing her good problem-solving skills. After school she joins students and community members of all ages in the computer lab. This afternoon she is working on a school project which uses Word Weaver for original composition. She opens her file and reads the text she has written so far. She adds a final note to the story about the drive-by shooting in her neighborhood last month.

Now she is ready to add sound and images to her story. She searches the image database and finds pictures of guns, houses, cars and people. She chooses some to import and adds them to the story. Then she cruises around the room and asks a classmate, her brother and a neighbor if they would say a few words into the microphone on her computer about Michael, who died in the shooting. She digitizes their voices as they share their thoughts. She adds those sounds as well as a siren she found in a sound database and scans in Michael's image from a school photo a friend had. Tomorrow she will share this story with her class but tonight many community members stop by her computer to read, listen and look at her story about Michael. For now she is glad she has a safe place to be until her brother picks her up at eight.

or... Influencing Public Policy at Sixteen

The state legislator holds a report in hand while five students stand before her, a computer projecting the image of a spreadsheet onto a large screen. "You say that you can document declining water quality?" The spokesperson for the project team nods his head. "We collected and analyzed stream samples over a six-month period. Here are the results."

The screen flashes a brightly colored graph which dramatically illustrates the research findings. "Well, young man, what recommendations do you have for us?" The student smiles warmly. "I'm glad you asked me that, Senator. We have several legislative proposals which we developed with the guidance of our teacher, in cooperation with representatives from the Department of Ecology, our community and ACE Paper Products, our partner from the

"It is essential that we find ways to reach out to impoverished families and create new educational opportunities.

Technology isn't the 'cure all' but it has enormous potential, a good track record, and an ability to motivate and interest students of all ages in an electronic and nonthreatening environment."

***Jay Franco, Teacher
Seattle School District***

business community. Many of these ideas have already been tested in other places, as we learned while researching on the Information Highway."

Thanks to powerfully networked information resources, students at Next Century High take a great deal of responsibility for their own learning. In keeping with state learning goals, teachers have been challenging students to apply problem-solving skills to real issues drawn from their own community, from the state of Washington, the nation and the world at large. Students divide their time between the learning of skills, the acquiring of knowledge and the solving of problems.

While teachers continue to play an important role as coaches and guides—making sure that students connect with the appropriate resources, in this school one rarely sees teachers standing in front of a class lecturing. Much of the learning takes place in groups as work teams of students employ new technologies to study questions and produce reports and projects.

The Cost...

From a school's perspective, translating the vision and the seven essential learnings for technology into action is extremely challenging. The intent of this spreadsheet is not to dictate the specific configuration for Washington classrooms, but rather to provide decision makers with an idea of the scope of investment required to adequately retool schools.

A classroom using best practices might contain...

Learning Purpose	Technology	No.	Unit	Total
Portable device for writing, calculating, storing, retrieving, processing, sending, receiving.	Productivity Devices 15 Students, 1 Teacher	16	\$ 1,000	\$ 16,000
Electronic notebook, pencil, wordprocessor, database and computer in one. Ratio 2:1 (Student:Device) so they work in pairs or teams and check it out when they need it at home. Teacher uses his/hers for same purposes as well as for classroom assessment.				
Productivity/Presenting, Managing, Desktop Publishing, Hypermedia, Communicating On a 4:1 (student:computer) ratio the work stations are located in the classroom enabling students to "plug-in" their personal devices for team work, collaborative projects, computing which requires higher level of machines, video, and/or connectivity with others locally and globally.	Work Stations with software, printer and network connection. 8 Students 1 Teacher	9	\$ 2,600	\$23,400
Video/Communication Media The projection device enables the entire class to view the same computer/video image. A combination of imaging devices for interacting with as well as productivity by learners: possibly including video camera(s), still camera(s), telecommunications device (phones), VCR(s), monitors, videdisc player(s), CD ROM player(s), and media (blank and instructional/curricular).	Classroom Video/Media		\$ 4,000	\$ 4,000
Subtotal for Classroom Note: networking included in building budget				\$ 43,400
Technical Support/Operation (10%)				\$ 4,340
Staff Development				\$ 1,000
Replacement costs—Six-year cycle	One-sixth of total			\$ 7,223
Total for Each Classroom				\$ 55,963

Bridging the Gaps...

Scenarios and Potential Costs:

Technology and Best Practices at Work in the School Building

Come on in....

The media center is buzzing with activity as research teams gather to work with collections of printed materials and artifacts of one kind or another. The media center's physical collection has changed to emphasize materials which might suffer from digitization, so there are many art prints, atlases and beautiful illustrations. Non-fiction books which previously became rapidly dated have been replaced by electronic media such as CD-ROM disks and access to the Information Highway, services which are served out across the school network into all classrooms. The media center has become a gathering place for teams to plan and conduct research. It also retains a fine hard cover collection of fiction, poetry and literature.

In one-half of the media center, the media specialist, Mr. Hammond, is showing a class of seventh graders how to employ the KWIC (keyword in context) function of the search software they will be employing as they conduct research on the Information Highway. The media specialist has primary responsibility for introducing students to the increasingly powerful research and information problem-solving resources available over the school and district network. He also provides instruction in how to make use of the desktop video editing available in the media center so that students may take their video footage and make use of it in projects. Utilization of the media center has tripled since installation of the district network and the approval of an information skills curriculum which is blended into the curriculum guides of all the other disciplines. Classroom teachers have forged a partnership with the media specialists to support extensive student problem-solving.

Check out what students are doing NOW...

Educators, students and parents have all discovered the power of electronic mail, portfolios and access to on-line resources. Just this year the school building has installed dial-up modems which allow students, parents and community members to electronically connect to the school from their homes and from access points in the local library. Students can now do their homework on-line while accessing all the resources they would have in school.

It's a school night and two drama students, Mario and Lee, have met at the local library to complete the staging of a play. They use

"Our school libraries provide the vital link between our learners and the information highway."

Librarians are key to leadership and staff development in integrating appropriate information and educational technologies in our school curriculum."

***Barb Bumgardner
Library Media Specialist
Shoreline School
District***

a computer station in the library which is placed there by the school to electronically connect and pull up their files on the staging. They peruse documents on-line to get a sense of the historical context of the play. Once they identify the period, they gather pictures of the components of the set, using the scanner to digitize images, organizing the images and related text in a desktop publishing program.

As they work they send an e-mail message to their teacher who happens to be on-line from home and answers them immediately. Once they finish the set for the play they save the file to be published tomorrow at school. Mario considers this assignment to be one of his best this year so he proceeds to place it in his electronic portfolio, noting his reasons for judging this to be of quality work and placing those thoughts along with the document in the portfolio. All of these files are readily available only to the student, his/her parents or guardians and instructors for review and comments.

The Cost...

From a school's perspective, translating the vision and the seven essential learnings for technology into action is extremely challenging. The intent of this spreadsheet is not to dictate the specific configuration for Washington schools, but rather to provide decision makers with an idea of the scope of investment required to adequately retool schools.

A building using best practices might contain...

Learning Purpose	Technology	No	Unit	Total
Library Media Center The library media center serves as the networking hub for the building. The center has a video distribution system through the network which allows classrooms to access videodiscs and video tapes from the center. It also has a CD-ROM tower and a circulation system that are accessible from the classrooms. This allows the learner to access resources anywhere in the building.	14 Work Stations/ 2 Staff Stations Equipment for on-line and off-line access to video, voice, text, images and data in organized process (e.g., circulation system, computers, disc players, CD-ROM tower/players, VCRs, monitors, printers, periodical station, circulation station/wand, editing suite (1 per every six-eight buildings), etc.	16	\$ 2,200	\$ 35,200 \$ 50,000
Building Network The building is networked for data and video and wired for adequate electrical capacity.	Network File Servers, routers, tape backup, uninterrupted power supply, hubs, connections (panels/wires/labor), video distribution system, electricity, voice integration, video production studio/head in.			\$244,400
Administration Stations	Administration/Support Stations with printers, software and networked. 7 stations	7		\$ 21,400
Subtotal on Equipment				\$351,000
Network Administration/Support	Support for the File Server			\$ 37,240
Staff Development				\$ 7,500
Replacement costs—Six-year cycle	One-sixth of total equipment/software cost			\$ 58,500
Total for Each Building	Note: Average varies with student populations and level of use.			\$454,240

Bridging the Gaps...

Scenarios and Potential Costs:

Technology and Best Practices at Work across the School District

Join in....

The class of sophomores is gathered in research teams, each of which is clustered around a computer linking the group to the Information Highway. The class is a combined social studies/science section which explores scientific questions with dramatic societal impact. The students are participating in a public policy simulation and debate on federal guidelines to restrict automobile emissions, for which each group is researching a particular position assigned by the teacher. Having already reviewed video clips of adult citizens actively debating their issue on a videodisc, they are now collecting evidence to support their position by scanning the voluminous electronic archives available through the school district's connection to the Information Highway.

As one group enters its search strategy, the monitor's screen fills up with a long list of articles, documents, data files, pictures and video clips which members down-load onto the hard drive for later culling and synthesizing. In less than ten minutes they have accumulated a stack of material which would extend to the ceiling of the classroom if printed in hard copy. By the next morning they had sorted through that electronic mountain until they found the most compelling and persuasive material. Tomorrow's class will be their opportunity to paste together their findings in a multi-media presentation which will include substantial blocks of their own analysis and writing.

A second team is sifting through responses to bulletin board messages they posted earlier in the week. Several hundred messages have been returned by key people in the automobile business, most of which are extremely helpful to the team as they begin to craft their presentation. A third team gathers around their monitor to interview a lobbyist from one of Washington's environmental groups. The two-way videoconference is saved by the computer for later cutting and pasting into the group's presentation.

A fourth team explores information resources related to emissions resident in the school media center on a CD-ROM tower, magazine articles and newspapers, for example, which are served out to each classroom over the school-wide network. They have been taught many of their information problem-solving skills by the school's media specialist who has shown great leadership in developing the media center as a hub for the information services of the school community.

"We would like teachers in this state to consider themselves lifelong learners. Teachers should think of themselves as the chief learner in the classroom, with students as learner apprentices."

***Bob Hughes
School Board Member
Lake Washington
School District***

A fifth team views footage from an interview taped the day before at one of the local automobile agencies, during which the manager was questioned about various proposals to limit emissions. They are editing the footage for use with their report. The teacher of this class moves from group to group, questioning, supporting and suggesting. This being the fifth such policy simulation of the school year, the students have "learned the ropes" and are capable of performing their research responsibilities with considerable autonomy.

The teacher recalls with a smile the three years and two summers of classes during which he "learned the ropes" himself by trying out all of the software and the problem-solving strategies with teams of other staff members, many of whom had been skeptical of technology until they saw its practical applications and were provided thorough training in its uses.

The Cost...

From a school's perspective, translating the vision and the seven essential learnings for technology into action is extremely challenging. The intent of this spreadsheet is not to dictate the specific configuration for Washington school districts, but rather to provide decision makers with an idea of the scope of investment required to adequately retool schools.

A school district using best practices might contain....

Purpose	Technology	No.	Unit	Total
District Office Fiscal and Student Record Management	Work Stations, printers, software and phones			\$ 32,500
Wide Area Network	WAN Equipment including integration of voice and data, and the transmission of voice, video and data between buildings and into a state backbone with gateways beyond.			\$ 116,940
Subtotal				\$ 149,440
Technology/Network Coordination				\$ 55,000
Staff Development				\$ 5,000
Replacement costs—Six-year cycle				\$ 24,700
Total for District Level Expenditures				\$ 234,140

Note: This spreadsheet is configured for a district of approximately 3,000 students in six buildings plus the district offices.

Bridging the Gaps...

Recommendations with Accountability

With the technology agenda established for K-12 education through this Washington State Technology Plan for K-12 Common Schools, it will be necessary for policymakers in government, education, business, labor and community to work together to successfully implement the plan.

The recommendations on the following pages serve to bridge the gap between the vision articulated in this plan and the current status of technology and telecommunications in K-12 schools. They represent a blueprint for the state to follow.

Each recommendation has associated results which will be carefully monitored from both an assessment and an evaluative perspective. The assessment to assure continuous quality improvement along the way and the evaluative to assure accountability to state legislators.

As technology, media and telecommunications are integrated into the learning process, the performance-based assessment system currently under design by the Commission on Student Learning will be the vehicle for assessing the effectiveness of the tools. Attaining the seven essential learnings for technology listed previously in this document is necessary for all students if they are to achieve the new state learning goals.

As the state plan is implemented every effort will be made to ensure efficiencies of cost. For example, group buys of products and services will be accomplished, expertise will be shared and districts will be asked to plan to sustain state investments in subsequent years through reprioritization of existing funds.

The combination of recommendations serve as a strong bridge to the technology vision for Washington State K-12 students.

"A systems approach is required to take full advantage of the learning possibilities technology brings to education.

That means that technology should not be an add-on, but rather an integral part of the way learning is accomplished at the student, educator, building, district, community and state levels."

**Education Technology
Advisory Committee**

Leadership Goals...

- General public consensus is that technology and telecommunications are critical components of a sound K-12 education.
- The role of technology and telecommunications in learning is considered as state education reform and restructuring initiatives are launched.
- State policymakers and stakeholders commit to appropriate and necessary long-term support and funding of the recommendations in this plan, holding the educational community accountable for continuous improvement in learning.
- Constitutional and statutory law and associated rules and regulations enable and empower schools to integrate technology and telecommunications into the learning process.

Resource Goals...

- All K-12 learners have equitable, universal access to technology tools and telecommunications services to help them reach the state learning goals.
- A telecommunications infrastructure is designed and deployed to provide communities with civic, health, social and educational access to resources/services.
- An educational funding system from the state assures basic technology and telecommunications access for equity of educational opportunity for all K-12 learners in the common school system.
- All school staff are knowledgeable about, competent and confident in, and committed to using technology and telecommunications to enhance learning.

Implementation Goals...

- All school districts are implementing a technology plan, tying technology to improving student learning and supporting assessment as required in the state's essential academic learning requirements.
- Supportive school structures encourage learners and educators to use technology and telecommunications to enhance the learning process by providing leadership in planning, timely training and technical support, and continuous support for new models to integrate technology.

The recommendations in this state plan provide policymakers with a blueprint as to how to attain these goals through a systemic approach to integrating technology, media and telecommunications into the K-12 common school system.

Bridging the Leadership Gaps

Recommendation #1

Technology in Education Initiatives

Gap

Technology and telecommunications are catalysts and tools for education reform, yet state technology planning is not closely aligned with education reform efforts in Washington State. Just as Boeing used a new paradigm in designing and testing all facets of the new Boeing 777 strictly through digital modeling on the computer, the K-12 education system must effectively apply technology and telecommunications to leverage limited resources and maximize results in preparing students for their futures. Telecommunications is a relatively new phenomenon in K-12 education for the majority of school districts. As such it will be important that information policies be carefully developed, adopted and implemented to ensure students', families' and staff's rights.

Recommendation #1

It is recommended that OSPI, the Commission on Student Learning, the school-to-work initiatives and the Goals 2000 Committee consider technological implications and opportunities as Washington's new education system is established. Furthermore, that the statewide Education Technology Advisory Committee serve in an advisory capacity in all matters pertaining to educational technology and information policymaking in K-12 for those groups; and that ETAC serve as an advocate for education in the telecommunications regulatory process.

Background

The National Telecommunications Infrastructure Administration identifies telecommunications as "a vital component of the U.S. economy and, indeed, of the nation's way of life." In this state of high technology industries it is particularly important that technology and telecommunications be factored into the development of state essential academic learning requirements and

"If we want to create a broad based, well-educated workforce that has a capacity to use information to keep our economy growing, then we need to hook this future workforce into the NII (National Information Infrastructure) early."

***Secretary Riley
U.S. Department of
Education
(May 25, 1994)***

its performance-based assessment system. To do so will require the careful alignment of the state technology plan with the work of the Commission on Student Learning, school-to-work initiatives and the Goals 2000 Committee. And it will require that educators assume an informed and aggressive role in the determination of telecommunications policy and regulation.

Scenario...

As the performance-based assessment system is developed, the Commission on Student Learning calls on the Technology Advisory Committee to:

- 1) research how technology and telecommunications can be used to electronically capture, record, organize and communicate students' performance on the essential learnings; and*
- 2) identify electronic means to connect students in rural/remote sites and/or gridlocked urban/surburban areas to school-to-work opportunities.*

Expected Results

This recommendation will increase awareness among K-12 education decision makers about technology and the role it should play in education reform in Washington State. Having one committee serve in an advisory capacity to the groups identified above would serve to coordinate progress toward: the effective use of technology and telecommunications in all facets of educational restructuring and reform (including the performance-based assessment system and the essential academic learning requirements); increased academic achievement through successful integration of technology and telecommunications in schools; and advocacy for K-12 education in telecommunications regulatory decision-making processes.

Who/What

The Superintendent of Public Instruction will continue working with and supporting the Education Technology Advisory Committee, establishing linkages among that committee and the Commission on Student Learning, OSPI, school-to-work initiatives and the Goals 2000 Committee to determine committee action.

Budget Request

Budget Category	<u>FY '95</u>	<u>FY '96</u>	<u>FY '95-'97</u>
Advisory Committee and Subcommittee Travel/Videoconferencing	\$ 11,000	\$ 11,000	\$ 22,000
Consultants/Speakers	10,000	10,000	20,000
Publications/Communications	<u>3,000</u>	<u>4,000</u>	<u>7,000</u>
Subtotal	\$ 24,000	\$ 25,000	\$ 49,000
Totals	<u>FY '95-'96</u>	<u>FY '97-'98</u>	<u>FY '99-2000</u>
Biennial Budget Requests:	\$ 49,000	\$ 40,000	\$ 20,000

Bridging the Leadership Gaps

Recommendation #2

Partnerships, Alliances and Public Awareness

Gap

In general, stakeholders for K-12 education do not have a common understanding of the potential technology and telecommunications hold for improving learning and for students' future economic viability. With the accelerating rate of emerging technologies, increasing levels of funding available from the federal government for the National Information Infrastructure and the rapidly expanding telecommunications market, it is imperative that Washington State be poised to leverage these "windows of opportunity."

Recommendation #2

It is recommended that the Legislature fund OSPI to launch alliances, partnerships and public awareness initiatives which gain broad-based public and private understanding, support and funding for the integration of technology and telecommunications in K-12 education to provide students with high quality, relevant learning experiences.

Background

The Department of Transportation is recommending "telecommuting" as a partial solution to transportation gridlock and environmental concerns from vehicle emissions. According to the American Electronics Association, today's competitive marketplace requires companies to constantly improve the product and speed production by tapping the full range of worker skills and talents. "Workers need to know how to use new technology, analyze and fix complex problems, and improve production processes." Similarly, education reform through technology and telecommunications represents a major shift from traditional learning techniques to knowledge-based, relevant learning processes.

Today citizens, students, community members and policymakers simply do not have sufficient information to make intelligent decisions about technology in schools. As communities become more active in

In support of linking the nation's classrooms to the Information Highway...

"This is my challenge to you... to form a coalition and make it an effective voice for the children of America."

***Federal Communications Commission (FCC)
Chairman Reed Hundt
(1994)***

Scenario...

After becoming aware of the role technology must play in today's schools, community X partnered with their local K-12 schools to fund a local technology plan which met K-12 needs during the school day; established the school as a community center at night for adult retraining, desktop publishing, resume writing, library research and civic needs of all community members; and electronically connected local citizens to a city bulletin board system for civic discussions, information on issues, a calendar of local events, and promotion of local businesses.

local decision making, this awareness will be critical. And, through this awareness, the state will be better positioned to leverage and align existing as well as new resources among stakeholders (e.g., the U.S. Department of Commerce's \$64 million grant program for telecommunications infrastructure in 1995-96).

Expected Results

This recommendation will result in: an increased level of understanding among all stakeholders that technology and telecommunications can and should play a vital role in the education of K-12 students and in the community as a whole; and new capacity to leverage private and public funds at the federal, state and local levels in coalitions and alliances which benefit the whole community and bring relevance to K-12 learning.

Who/What

The Superintendent of Public Instruction will build coalitions to apply for and secure funding for technology in K-12 schools; and work with all stakeholders on public awareness initiatives which highlight the critical role of technology and telecommunications in education reform.

Budget Request

Budget Category	<u>FY '95</u>	<u>FY '96</u>	<u>FY '95-'97</u>
Product Production/ Duplication and Dissemination	\$ 125,000	\$ 175,000	\$ 300,000
Matching funds for Federal/ Private and/or State Grants	0	300,000	300,000
Subtotal	\$ 125,000	\$ 475,000	\$ 600,000

Biennial Budget Requests:	<u>FY '95-'96</u>	<u>FY '97-'98</u>	<u>FY '99-2000</u>
	\$ 600,000	\$ 600,000	\$ 400,000

Bridging the Leadership Gaps

Recommendation #3

Gap

With increased need for telecommunications services in schools comes increased need for investment both in initial installation of equipment and in ongoing connection fees. Schools generally do not have the expertise to plan for efficiencies in design of networks nor expertise in negotiating their way through the telecommunications regulatory landscape to secure low service charges. School budgets need to be leveraged through low telecommunications rates for schools.

Recommendation #3

It is recommended that the state assist schools in securing affordable access to telecommunications services and equipment for K-12 education through:

1. Legislative funds to support OSPI, in cooperation with the Department of Information Services and the educational service districts, to aggregate buying among school districts;
2. Legislative funding to support OSPI and the educational service districts in launching and sustaining a program to increase the ability of school districts to secure affordable telecommunications access through careful planning and competitive advantage;
3. Legislative funds for a grant program to develop prototypes and exemplary models which provide low telecommunications rates to local schools through innovative school/community/business partnerships;
4. Legislative action to modify the tax incentive program to high tech industry in Washington State to include businesses which support the implementation of this state technology plan; and
5. Legislative action to ensure educational channel capacity across existing cable systems and support in program production be made available to local K-12 school districts.

Background

Washington State leads the nation in moving toward deregulation of telecommunications providers and promotion of a competitive

Affordable Telecom- munications Access for Schools

“By fostering fair and open competition, the Utilities and Transportation Commission is optimistic that schools will benefit from the improvements in quality, service and price...”

This means that school administrators will have to be informed consumers so that students receive the services they need at prices that the schools can afford.”

***Sharon Nelson
Chair, Washington State
Utilities and
Transportation
Commission***

Scenarios...

Districts X, Y, and Z in eastern Washington have formed a consortium in partnership with their communities to negotiate with Phone Company ZZZ to bring a fiber ring into that region of the state. The schools act as "anchors" with the community leveraging the electronic connections through new "telecommuting" businesses, new library services to homes and electronic access to government information.

Awareness brought action in Community W. The city council is working with the local school districts, county government, local businesses, phone companies and cable companies to build a system of inter-connected electronic linkages that meets the communication needs of all, with the schools as anchors on the system, customers who pay affordable rates in return for volume and predictability of service needs.

environment with rate-based costs for services. Ultimately school districts should be able to identify their needs and secure affordable telecommunications services to meet those needs through savvy negotiations in that competitive environment. As the National Information Infrastructure is deployed it is clear that all levels of the community should be tapped to leverage resources and move toward universal service for all citizens. These recommendations are interim steps toward moving schools in this direction, and are clearly needed to provide low-cost access to schools in this climate of regulatory change.

Expected Results

With low-cost telecommunications access for schools will come increased communication between the school, the home and the community; increased access to up-to-date educational resources for students and educators; increased student access to "the real world" which will increase the relevancy of learning and build strong school-to-work transitions; and stronger ties with the community. This translates into a leveraging of resources for the benefit of all.

Who/What

The State Legislature will consider enacting legislation to provide tax incentives to Washington businesses for their efforts in implementing this plan; and to allow school districts full access to at least one cable channel and production on existing community systems. The legislature will fund OSPI and the educational service districts to: establish an education program on telecommunications for school districts, in cooperation with telecommunications providers; to work with the Department of Information Services to aggregate buying power for school district telecommunications products and services; and to establish a grant program to establish community prototypes which result in low telecommunications costs for schools.

Budget

Budget Category	<u>FY '95</u>	<u>FY '96</u>	<u>FY '95-'97</u>
Education/Coordination	\$ 40,000	\$ 45,000	\$ 85,000
Initiatives for Schools			
Forums/Workshops/Materials	70,000	60,000	130,000
Tax Incentives Review Process	2,500	2,500	5,000
Grants for Community Prototypes			
Coordination/Selection	89,700	110,200	199,900
Grants to Communities	400,000	1,400,000	1,800,000
Cable Access/Program Production			
Schools-Cable Alliance	<u>200,000</u>	<u>200,000</u>	<u>400,000</u>
Subtotal	\$ 802,200	\$1,817,700	\$2,619,900
Biennial Budget Requests:	<u>FY '95-'96</u> \$2,619,900	<u>FY '97-'98</u> \$2,500,000	<u>FY '99-2000</u> \$1,000,000

Bridging the Leadership Gaps

Recommendation #4

State Policies and Funding Strategies to Reflect Technology

Gap

In just the last two years more than one industry giant has been required to downsize and significantly change their corporate structure in order to survive economically. That meant doing business in entirely new ways. These same realities have greatly contributed to the impetus for education reform for K-12 in Washington State. Yet, current education funding mechanisms do not reflect technological requirements (e.g., ongoing staff development needs, technical/networking support staff, maintenance, operation and upgrading of equipment and networks, district coordination, technical and programmatic support in school buildings).

Recommendation #4

It is recommended that all development, adoption and/or revision of policies and procedures for the common school system by the State Legislature, the State Board of Education, the Commission on Student Learning and OSPI reflect current technological requirements for learning.

Background

Business and industry consider the initial investment in hardware as approximately one-fifth the cost of technology implementation. The remaining four-fifths of their costs lie in ongoing training, software and hardware maintenance and upgrades as well as technical support to ensure maximum use of the investment. If schools are to effectively integrate technology and telecommunications into the learning process and sustain that investment, they, too, must include these sustainability factors.

“Funding restrictions must change to allow communities the flexibility to support their schools in providing technology as a learning tool.”

***Rick Feutz
Kent School District***

Scenario...

Results at the district level:

The Commission on Student Learning has integrated technology into the Essential Academic Learning Requirements. As a direct result, the budget director for District Y includes the growth, operation, associated staff development and sustainability of technology for learning as line items in the district budget for basic education.

Expected Results

The Joint Select Committee on Education Restructuring and other education policymakers will consider technological implications for schools during their review of the current statutes, educational policies and rules/regulations for Washington State. And school districts will consider factoring in technology and telecommunications costs as line items when they build their general operating budgets, including: initial investments; related staff development and instructional materials; operation, maintenance; upgrades; and ongoing technical and programmatic support.

Who/What

The Education Technology Advisory Committee and OSPI will recommend to the Joint Select Committee on Education Restructuring and other education policymakers that technological implications be considered in education funding formulas.

Budget Request

No anticipated fiscal impact:

	<u>FY '95-'96</u>	<u>FY '97-'98</u>	<u>FY '99-2000</u>
Biennial Budget Requests:	\$0	\$0	\$0

Bridging the Leadership Gaps

Recommendation #5

Review of Levy and Bond Regulations on Technology

Gap

Current constitutional and statutory language defining, governing and administering the use of school levy and bond funds for technology and telecommunications acts as a barrier to effective use in schools.

Recommendation #5

It is recommended that the State Legislature enact legislation to revise current constitutional and statutory language regarding bonds and levies to give school districts increased flexibility to effectively deploy, operate, upgrade and maintain technology and telecommunications in the K-12 education system.

Recommendations include:

1. Striking the clause prohibiting the use of bond/levy funds for the replacement of equipment.
2. Adding "technological modernization of learning sites" as an allowable expenditure under the six-year modernization levy.
3. Adding "technology related investments" to the expenditure categories allowable under bonds and levies. Defining technology related investments to include the purchase, upgrade and installation of: electronic and optical equipment such as computers, CD-ROM players, videodisc players, electron microscopes; associated wiring, cabling, servers, routers, modems, networks and other peripherals; software and other technology-related media; associated installation costs; initial training of staff; and other items incidental to the deployment of the investment.

"Schools need the flexibility to use bond and levy dollars not only for equipment but for related investments which ensure the efficient and effective installation, operation and use of the technologies."

***John Newsom
Technology Coordinator
Bellevue School District***

Scenario...

The \$5 million bond District X just passed for technology learning tools is a great "return on investment" in terms of student learning.

Due to recent changes in state regulations, this project has the flexibility to include all the components for success...

Equipment purchases are tied to specific learning results, with teachers, paraprofessionals, students and parents in on the planning. And everyone is trained on the machines they will use, with the software carefully selected to support the curriculum.

Strong technical support means that when a machine doesn't turn on or e-mail won't work teachers have a technician to call who is there immediately, and a curriculum specialist for daily support in using the technology to support learning.

A true systems approach!

Background

Deployment of technology and telecommunications equipment in schools must be aligned with a comprehensive strategy to ensure maximum positive effect on learning and sustainability of this investment. Support strategies must include associated staff development; technical support; ongoing operation, maintenance and upgrading of hardware, software and technology-related instructional materials; and ongoing coordination and leadership in this area. State statutes and policies should encourage this comprehensive approach.

Expected Results

These recommended changes would increase the flexibility of the school district to allocate funds toward a comprehensive approach to the use of technology in schools, thus ensuring maximum gain from the state investment.

Who/What

The State Legislature will consider enacting legislation which succinctly establishes new definitions for technology, capital projects funds and modernization, adding flexibility and clarification to existing statutory language on bonds and levies as it pertains to technology and telecommunications investments.

Budget Request

No anticipated fiscal impact.

	<u>FY '95-'96</u>	<u>FY '97-'98</u>	<u>FY '99-2000</u>
Biennial Budget Requests:	\$0	\$0	\$0

Bridging the Resource Gaps

Recommendation #6

State Allocation to School Districts for Technology

Gap

It is the paramount duty of the state of Washington to provide equitable educational opportunities for all students in the common school system. Yet current student access to technology and telecommunications for learning largely depends on whether or not their community has the economic base and the collective will to support bonds and levies for this purpose.

Recommendation #6

It is recommended that the Legislature establish and fund an ongoing technology grant program through OSPI to grant funds to school districts to equitably support all students' learning through technology and telecommunications. Prior to receiving such grants, school districts would be required to develop, implement and assess technology plans focused on student learning.

Background

Children entering a typical elementary school in Washington State will not use technology or telecommunications as a learning tool integral to their education. The public and business and industry in particular clearly recognize that technology and telecommunications play a significant role in today's environmental, social and health services, economic, civic and entertainment segments of American life. Yet, in general, that acceptance has not yet translated into the recognition that those same tools must be used to improve and enhance learning and are, in fact, necessary to preparing our youngsters for their futures.

Research clearly demonstrates that, combined with appropriate teaching methods, technology and telecommunications do increase academic achievement among the K-12 population. In fact, the use of those tools enables educators and parents to provide a more relevant, engaging educational program which can be designed to

“Educational decision makers must carefully analyze the current use of school funds and reprioritize existing dollars to reflect the changing needs in education.”

So many of the things we are trying to do in schools today could be accomplished through technology, but that will take new money for retrofitting our school facilities.”

**Thelma Jackson
School Board Member
North Thurston School
District**

Scenario...

Results in Teacher Productivity...

Eduardo drags an icon across his desktop computer and smiles. With a simple mouse-click he sends a folder of duplicating materials down the hall to be centrally copied, saving himself the need to print or walk. Next he transfers a list of the week's assignments to e-mail, clicks on group addresses to match each class and then sends the batch out to all of his students on an electronic bulletin board available to callers from outside of school such as parents or absent students. He smiles and turns to a student waiting to discuss a recent paper.

meet the learning needs of all children and youth in the common school system.

Expected Results

This recommendation will translate into tremendous progress toward equity of educational opportunity to learn for Washington State students. The return on investment will be forthcoming in the form of increased student attainment of the four state learning goals; increased relevancy of learning which translates into school-to-work opportunities, individual student stewardship toward community and engagement, on-task learning; and increased economic viability of this state to sustain and grow a knowledge-based economy in a global competitive market.

Who/What

The Superintendent of Public Instruction will establish a grant program for school districts that allocates funds for educational technology within a state framework which guides school districts toward the use of the tools in support of student attainment of the state learning goals. The next four pages in this document outline that state framework, district requirements and a strategy for allocation of funds.

Budget Request

Budget Category	<u>FY '95</u>	<u>FY '96</u>	<u>FY '95-'97</u>
Planning/Staff	\$ 9,750,000	\$ 0	\$ 9,750,000
Awareness/Prototypes			
Review Process for District Technology Plans	8,000	4,000	12,000
Connectivity Allocation to School Districts	15,000,000	30,000,000	45,000,000
Allocation to School Districts for Implementation of district technology plan (match required)	15,000,000	30,000,000	45,000,000
Evaluation/Assessment Consultant Contract	50,000	100,000	150,000
OSPI Oversight	85,845	21,845	176,690
Subtotal	\$ 39,893,845	\$ 60,195,845	\$ 100,089,690
Biennial Budget Requests:	<u>FY '95-'96</u> \$ 100,089,690	<u>FY '97-'98</u> \$ 150,000,000	<u>FY '99-2000</u> \$ 200,000,000

Details for...

Recommendation #6

Education Technology Grant Program

The Office of Superintendent of Public Instruction will allocate grant funds of \$100 million in the 1995-97 biennium to school districts on a per student FTE (full-time equivalent) basis.

Prior to receipt of implementation dollars, each school district is required to have an approved technology plan on file with OSPI for the 1995-97 biennium which meets the criteria on the following pages. The approval process will include a review by peers under the direction of OSPI in cooperation with the Educational Technology Support Centers. The intent of the review process will be to approve all plans meeting the state criteria and to provide technical assistance for those districts whose plans are not approved in an initial review. The process will be conducted quarterly to review plans submitted by districts in the prior quarter.

The allocation of funds shall be as follows:

"A comprehensive school district technology plan is critical to ensuring that the state technology allocations are wisely invested in the futures of our children."

*Education Technology
Advisory Committee*

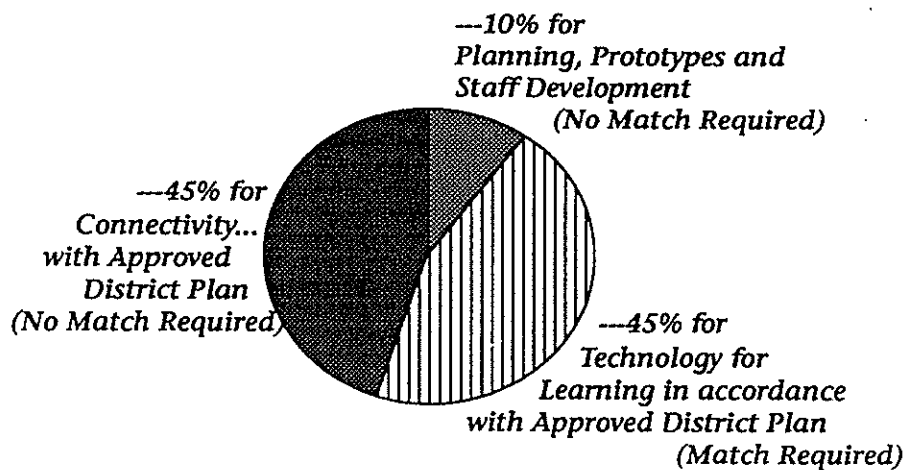


Chart: \$100 million Allocation to School Districts on a Student FTE basis.

"The utilization of technology will be one of the keys to the culture change needed in education to help prepare our students for their futures.

The most important arena for educational reform is at the classroom and building levels where principals play a critical role in facilitating change."

*Dr. Neal Powell
President
Association of
Washington School
Principals*

The grant program for school districts will be implemented as follows:

- 1) Up to 10% of the biennial funds will be allocated to school districts in the first year to support technology planning, staff development critical to technology planning and/or research through model programs. No match will be required for these funds. Said plan will incorporate strong building-based decision making in both the development and implementation of the plan within a district framework. OSPI, the Educational Technology Support Centers at the educational service districts and districts with successful track records will work with other school districts to assure a quality technology planning process at the district and building levels, as well as general community awareness.
- 2) 45% of the funds will be allocated to schools for connectivity on a student FTE basis provided the school district has a state-approved technology plan. No match will be required for these funds. No district meeting the criteria will receive a sum of less than \$10,000 in this category. Those districts which have established building-wide networks in at least one-third of their buildings will join a "Peer Coalition for Technology," through which they will be called upon to share their expertise with a district, or districts, not yet at that level of connectivity.
- 3) 45% of the funds will be allocated to schools to implement their district plans provided that they have been approved by the state and meet the match requirement calculated based on their economic ability to pay. Educational technology funds expended by the district during the 1994-95 school year for technology will be counted in the match requirement for the 1995-97 biennium. No district meeting the criteria in this category will receive a sum of less than \$10,000.
- 4) Districts will be accountable to OSPI for the planning, implementation and evaluation components of this grant program.

Details on...

Recommendation #6

A state-approved School District Technology Plan is required before school districts can receive 90% of their education technology allocation for 1995-97. The following guidelines will serve as benchmarks in the technology plan approval process.

Each district plan will ensure systemic change in all phases of the planning, implementation and evaluation by:

1. Including representatives from education, the community, the student body, local community colleges and institutions of higher education, libraries, labor, and business and industry on both the school district technology advisory committee and on site councils at the building level;
2. Including an initiative to increase the awareness and involvement of the local public, students, educators, community and business and industry as to the potential technology and telecommunications hold for improving student learning; and
3. Developing the plan around a district/community framework which involves a level of decision making at the building sites.

Each plan will design the technology system around learning by:

4. Integrating the use of technology and telecommunications into the school district's education reform efforts and time lines;
5. Integrating technology across the curriculum, at all grade levels and in all learning centers (e.g., classroom, library media centers, special programs);
6. Including an assessment of the current status of the school district regarding technology and telecommunications (inventory of equipment, peripherals, instructional programs where technology is integrated, staff expertise, assigned personnel, decision-making process for technology, staff development program on technology for learning, networks, wiring, etc.);

State Benchmarks for District Technology Plans

"A district plan for technology will ensure policymakers that the state investment will have a real impact on student learning, that districts will plan to sustain the investment and that state standards will be adhered to for purposes of interoperability and connectivity."

***Education Technology
Advisory Committee***

7. Developing a **vision and a strategic framework** for equitable and systemic change across the district; and
8. Designing a **district infrastructure** for connectivity which meets the district learning needs and the state standards; leverages community resources; connects with all library media centers, the local public library and other local schools; and includes a level of community access.

Provide a strong support system to ensure successful implementation by:

9. Including a strong ongoing staff development component which supports all staff in modeling and integrating technology and telecommunications in the learning process and increases administrative productivity; and
10. Including a plan for **ongoing program support** to enable all staff to systematically integrate technology and telecommunications in the teaching and learning process, including some integration of academics and vocational education.

Build into the plan change, growth and sustainability by:

11. Including a **technical and fiscal plan** for ongoing support for all technology investments, including careful documentation of all infrastructure installation; adherence to district equipment standards; ongoing repairs, upgrades, maintenance and replacement; and the technical personnel necessary to operate, and maintain and troubleshoot the systems;
12. Including a **comprehensive assessment strategy** which links to the state performance-based assessment system currently under development. The intent is to gauge the impact of technology and telecommunications on student learning and students' progress toward the achievement of the state learning goals;
13. Including a process for **review/adoption of school board policies** which address copyright, intellectual freedom, access, privacy, confidentiality and acceptable use of the school district's technology and telecommunications resources by students, educators, staff, parents and community members; and
14. Including a **time line** for ongoing planning, incremental and prioritized implementation, assessment, evaluation and revision of the plan.

Note: The state and regional education agencies will provide a planning template and technical assistance to districts in support of their technology planning, implementation and assessment efforts.

Bridging the Resource Gaps

Recommendation #7

Regional Support for Educational Professionals

Gap

The Educational Technology Support Centers, funded through the 1993 Education Reform Act, and the inservice programs through institutions of higher education are not currently able to meet all the educational technology needs of local school districts, particularly in the area of networking and new staff development models supporting the work of the Commission on Student Learning. As the Commission designs the performance-based assessment system it will be critical that new staff development models be designed for specific buildings and specific educators as they implement the work of the Commission in their school buildings and classrooms.

Recommendation #7

It is recommended that the Legislature increase funding to OSPI and the Educational Technology Support Center program in the ESDs to:

- 1) expand services in networking to meet current demand, and
- 2) work with institutions of higher education and the Commission on Student Learning in developing and implementing new staff development models which support new education reform initiatives.

Background

Currently the Educational Technology Support Centers and institutions of higher education are providing quality inservice classes on educational technology. These classes build a basic awareness of technology and telecommunications applications to learning. What educators need beyond that are staff development programs designed to meet the specific learning goals of a building staff, taking into account the equipment and resources available in the building and the instructional approaches and curricular focuses of that building. When staff are guided through a program designed to improve learning for their students, in their building—using their resources, with their curricular focus—real change begins to happen.

“We depend on the Educational Technology Center for staff development models, the latest information on educational uses of emerging technologies, unbiased advice on network design and forums for exchanging good ideas with other schools.”

***Jim Menzies
former Superintendent of
the Tekoa School District***

Scenario...

Results at the community level...

Teams of teachers and students meet with graphics professionals in the regional ESD to learn the latest, user-friendly desktop publishing and mailing list programs so they can teach community groups how to communicate more effectively and efficiently. Once proficient, students will schedule an open house for senior citizens and others to teach the new skills to their elders, who will use district equipment during the evening hours when the labs are open to the community.

This state needs to take that next step in staff development programs by linking institutions of higher education with K-12 inservice providers and K-12 schools.

In a statewide survey of school districts in the fall of 1993 one of the critical needs identified was networking consultative services. Currently the ratio at which the education community is providing that service averages to about 9 hours per district or 1.5 hours per building, hardly adequate to meet the pressing need expressed by districts.

Expected Results

With increased access to networking consultation local school districts will be in a position to design cost-efficient networks which truly meet the educational needs of the schools and community. Relevant, in-depth staff development models provided in cooperation between higher education and K-12 will leverage resources from both sectors. These joint efforts will ultimately increase the knowledge and skill level of educators in using technology and telecommunications to increase student academic achievement and bring relevancy to the classroom.

Who/What

With legislative support, the Office of Superintendent of Public Instruction, in alliance with the educational service districts, will extend the services of the Educational Technology Support Centers to provide more in-depth networking consultative services. Those services will be provided through alliances with the ESDs as well as the Commission on Student Learning, school districts and institutions of higher education, to assist educators in designing and implementing new technology-related staff development models which support the new state essential academic learning requirements.

Budget Request

Budget Category	FY '95	FY '96	FY '95-'97
Networking Consultants	\$ 175,000	\$ 175,000	\$ 350,000
Develop and implement new staff development models			
• Cadre of Trainers for ETSC	150,000	90,000	240,000
• Travel	18,000	9,000	27,000
• Equipment/Instructional Media for cadre	180,000	210,000	390,000
• Seed consortia of ESD, school district and/or higher education institutions to develop/implement new staff development models	300,000	150,000	450,000
Subtotal	\$ 823,000	\$ 634,000	\$1,457,000
	FY '95-'96	FY '97-'98	FY '99-2000
Biennial Budget Requests:	\$1,457,000	\$1,400,000	\$1,400,000

Bridging the Resource Gaps

Recommendation #8

Enhancing the K-12 Statewide Electronic Network

Gap

The challenge before the state is how to wisely invest state dollars in infrastructure to meet the school districts' current administrative, student records and instructional needs for data traffic at affordable costs. Currently the educational provider of most data services to our schools, Washington School Information Processing Cooperative, is experiencing a sharp increase in schools seeking Internet connections which will require increases in capacity, reliability and availability. In the interim, many schools need dial-up capacity until they can carefully plan and implement routed networks.

Recommendation #8

It is recommended that the Legislature appropriate funds to OSPI for the enhancement, extension and continued operation of a state backbone (leveraging off all existing educational and governmental systems where possible) for the K-12 common schools across the state. And, furthermore, to connect schools to other learning resources such as public libraries, community and technical colleges and institutions of higher education.

Background

Washington State's WEdNet (the Washington Education Network) is a statewide administrative data and video network that is being enhanced to carry instructional and curricular traffic. In the process the education community has formed alliances with state government agencies to interconnect governmental and educational networks, providing economies of scale for all partners. Operated by the Washington State Information Processing Cooperative (WSIPC), WEdNet connects 277 of the 296 school districts administratively and provides 50 schools with routed connections to Internet (representing one-third of the school population).

"Because my schools are networked they are closely connected to community, homes and unlimited resources. These connections level the playing field for students living in rural and remote areas.

In a community such as Onalaska, our students must be prepared for jobs other than logging. Telecommunications helps us expand their horizons."

***Bob Kraig
Superintendent
Onalaska School District***

Scenario...

The site council for an elementary school met last night to develop a plan to use the \$20.61 allocation (per student) for technology. With their realization of the need for reliable information comes a decision to network their library and connect to on-line electronic services.

Their local Educational Technology Center provides the networking consultation they need—recommendations on network design, information on state standards and protocols, and good references so they can learn from other schools who have already networked their libraries.

In addition, they get the good news that a state education backbone exists that they can connect into at affordable costs, taking advantage of the access policies already developed, the standards and protocols in place, and the on-line curriculum projects available through OSPI and the ESDs.

Expected Results

With the network and operational enhancements to WEdNet (Washington Education Network), school districts will have more network capacity and increased reliability of the network as well as increased dial-up capacity at the ESDs. This assures school districts that, as more clients get connected to the Internet and other curricular services over WEdNet, this state network will maintain service, reliability and support. The pricing structure of this system provides equity of cost and service regardless of geographic location of school districts in the state. OSPI will work with the Washington School Information Processing Cooperative and the Department of Information Services to leverage resources where possible.

Who/What

The Superintendent of Public Instruction will contract with the Washington School Information Processing Cooperative to upgrade the Washington Education Network to frame relay technology, diversify the WEdNet backbone long-distance routing to ensure reliability of service, and provide operational staffing to support these upgrades and the increasing use of the Internet hubs installed with state funding in 1993-94. In addition, OSPI will contract with the nine educational service districts to provide dial-up access to Internet for instructional purposes and networking expertise to assist districts. Every effort will be made to connect with public libraries, community and technical colleges and institutions of higher education.

Budget Request

Budget Category	FY '95	FY '96	FY '95-'97
Enhance WSIPC backbone to frame relay and upgrade ESD equipment for ATM and install new node at local co-location	\$ 300,000	\$ 400,000	\$ 700,000
Diversify the WEdNet backbone	100,000	100,000	200,000
Provide dial-up capacity	186,300	64,800	251,100
Software/On-line Services	100,000	200,000	300,000
Network Operation/Planning	<u>348,500</u>	<u>348,500</u>	<u>697,000</u>
Subtotal	\$1,034,800	\$1,113,300	\$2,148,100

Biennial Budget Requests:	<u>FY '95-'96</u> \$2,148,100	<u>FY '97-'98</u> \$1,800,000	<u>FY '99-2000</u> \$1,200,000
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Bridging the Resource Gaps

Recommendation #9

Electronic Destinations

Gap

With the rate of change in society today there is an increasing need for educators and students to have ready access to electronic information. Currently most source data which educators and students study in the academic subjects is not available in electronic form, or if it is available electronically it is not indexed to allow easy access by K-12 students or it is not affordable to schools. Examples include electronic encyclopedias, census data, geographic information, Washington state statistics on ecology, weather, climate, etc.

Recommendation #9

It is recommended that the Legislature appropriate funds to OSPI to support the conversion of data (text, video, audio, imagery, etc.) into electronic form to be made available to Washington K-12 learners at reduced rates. Priority will be given to in-state entities (e.g., universities, libraries, classrooms, museums, resource agencies). It is further recommended that the state secure rights to curricular resources deemed necessary by school districts (e.g., electronic access to an atlas, an encyclopedia, archival series of images on the Holocaust; Civil Rights video images, etc.).

Background

Many sources of information across the state do not offer their data in electronic form. This recommendation would seed agencies such as the Department of Community Trade and Economic Development, the University of Washington Art Department or the Department of Ecology to index their data electronically so that it might come to life through K-12 classroom access. This leverages the state funds in such entities to maximize the use of the information collected, analyzed and stored.

“As students research emergent global issues it is imperative that they have access to up-to-the-minute, in-depth on-line sources in their school libraries.”

**A. Elaine Twogood
Traveling Librarian
Tacoma Public Schools**

Scenarios...

"After purchasing new wall maps and globes, the Soviet Union broke up and the materials were outdated before the school even paid the invoice," stated a library media specialist in a local school.

"Now that the state purchased rights to both an electronic encyclopedia and atlas, the information I am able to connect my students to is always up-to-date and accurate.

Students are especially interested in accessing information about their own state. When they can access aerial photos of virtually any community in the state, statistics on water quality in all Washington cities, trends in wildlife populations in the North Cascades, and see charts of the downturn in salmon spawning in any river they choose, they are excited to form their own hypothesis and then do the research necessary to support their analysis."

Expected Results

Washington learners will have access to primary source data at affordable costs, enriching the quality of the learning experience. This access is one means through which students will reach beyond the walls of the classroom to bring relevant, meaningful experiences into the learning process. This is a primary example of the third state learning goal "to think analytically, logically, and creatively, and to integrate experience and knowledge to form reasoned judgments and solve problems." In a creative teacher's classroom, this source data is the spark of relevancy to ignite students in attaining this goal.

Who/What

The Superintendent of Public Instruction will work with the Commission on Student Learning and an Education Technology Advisory subcommittee of K-12 library media specialists, curriculum specialists and other educators to identify source data which would support new approaches to learning in areas targeted by the Commission. A competitive process will be established through an advisory committee to OSPI, with clear priorities and clear expectations as to future access to the materials by K-12 students.

Budget Request

Budget Category	<u>FY '95</u>	<u>FY '96</u>	<u>FY '95-'97</u>
Licensing of media for state	\$ 100,000	\$ 150,000	\$ 250,000
Grants to transfer data into electronic form accessible by schools	<u>100,000</u>	<u>200,000</u>	<u>300,000</u>
Subtotal	\$ 200,000	\$ 350,000	\$ 550,000
	<u>FY '95-96</u>	<u>FY '97-98</u>	<u>FY '99-2000</u>
Biennial Budget Requests:	\$ 550,000	\$1,550,000	\$ 550,000

Bridging the Implementation Gaps

Recommendation #10

Integrating Technology into the Curriculum

Gap

Providing the access to the telecommunications is not enough. Students, teachers, paraprofessionals and administrators need a context within which to begin using the network for learning.

Recommendation #10

It is recommended that the Legislature appropriate funds to OSPI to develop, implement and assess technology-based curriculum projects which support Washington State's educational reform. Said projects would be in cooperation with school districts, educational service districts, the Commission on Student Learning, the Center for the Improvement of Student Learning and higher education institutions.

Background

Through an appropriation for technology in the 1993 Education Reform Act, the Office of Superintendent of Public Instruction is launching eight on-line curriculum and instruction pilot projects this fall (1994) involving over 300 classrooms statewide. For example the "It Ought To Be A Law" project connects 60 classrooms to state legislators and each other over the Internet. These students learn, firsthand about state government by interacting with legislators, proffering ideas for new laws, tracking bills through the 1995 legislative process and interacting with their legislators via interactive videoconferencing. This truly brings relevance to learning about state government and the legislative process.

This recommendation will support the continuation and expansion of those pilots which are deemed a success and will provide an opportunity to systematically involve novice teachers and students in the effective use of telecommunications as an instructional tool. Through each project a moderator coaches these

"What teaching moments we have had in this project! Fantastic discussions have occurred about how fragile history can be... One student reported, with fear in her eyes, that the elderly lady she was scheduled to interview had taken gravely ill. That student's connection to 'history' is very real!"

John Smith
Ferndale School District
Participant in the
Making History Real
On-line Pilot

1994 Pilot Project:

The "It Ought To be a Law" project connects 60 classrooms and interested state legislators in actively involving students in "legislation in the making."

This fall classrooms across the state are studying state government through participation. They will have the opportunity to work on-line with schools across the state to generate ideas on what "ought to be a law" while dialoging with their state legislators.

Once the state legislature convenes, students will track bills, poll their communities on issues, electronically stay current with bill changes, and communicate their opinions and polling with legislators via the Internet, and face-to-face via the statewide interactive video conferencing system.

Truly democracy at work.

teachers, paraprofessionals and students through an exciting curriculum which uses technology and telecommunications to bring relevance to the curriculum. Students are excited and interested to be part of "real" projects.

Expected Results

These pilots would result in the implementation of 20 new on-line curriculum projects which are directly tied to the state essential academic learning requirements. The projects would provide over 750 teachers and 1,900 students experience in using Internet to access resources, study with peers, contribute to a growing knowledge base and access experts across the evolving state telecommunications system for education. Ongoing staff development for participating teachers will be an integral part of these projects, guiding educators through the process of integrating the use of telecommunications into their curriculum. Ultimately this recommendation will provide a learning context for the telecommunications infrastructure.

Who/What

The Office of Superintendent of Public Instruction, in cooperation with school districts, the educational service districts, the Commission on Student Learning, the Center for the Improvement of Student Learning and higher education institutions, will establish projects and select classroom participants through a competitive process.

Budget Request

Budget Category	<u>FY '95</u>	<u>FY '96</u>	<u>FY '95-'97</u>
Contracts for moderators for 20 projects	\$ 200,000	\$ 200,000	\$ 400,000
Training sessions for 20 projects	80,000	18,000	98,000
Staff for EISC: 2.0 FTE	151,440	151,440	302,880
Staff for OSPI 1.5 FTE	<u>97,845</u>	<u>97,845</u>	<u>195,690</u>
Subtotal	\$ 529,285	\$ 467,285	\$ 996,570
	<u>FY '95-'96</u>	<u>FY '97-'98</u>	<u>FY '99-2000</u>
Biennial Budget Requests:	\$ 996,570	\$1,500,000	\$1,500,000

Bridging the Implementation Gaps

Recommendation #11

Integrating Technology into Teacher Preparation Programs

Gap

Generally, new teachers graduating from colleges of education in Washington State do not have the training and experience to effectively integrate technology and telecommunications into the learning process.

Recommendation #11

It is recommended that the Legislature appropriate funds to OSPI to pilot new models of training for prospective teachers, incorporating new technology-based instructional strategies and strong linkages between K-12 schools and state-approved teacher preparation programs. The pilots would be in partnership with the State Board of Education, the Higher Education Coordinating Board, the State Board for Community and Technical Colleges and institutions of higher education. It is further recommended that the State Board of Education and OSPI, with advisement from the Professional Education Advisory Committee (PEAC) incorporate technology in the current study on performance-based teacher certification.

Background

The current technology requirement for teacher certification is focused on skill with using the equipment rather than focusing on the preservice teacher's ability to use these tools to promote learning within an academic subject area. The new model would provide opportunities for collaborations between university professors and the K-12 educators, enabling the leveraging of resources and expertise as preservice teachers incorporate this new methodology into their repertoire.

Expected Results

Expected results will include prospective teachers graduating from colleges of education with an understanding of and the skills

"We need to give the college students in our teacher preparation programs the tools and insights into effectively using those tools to achieve the new state learning goals.

These young professionals can be the spark for bringing technology into the public schools."

***Dr. Tony Jongejan
Western Washington
University***

Scenario...

Jake is a college student in the teacher preparation program in Bellingham. Jake's mathematics methods class is working with the local high school in team teaching a mathematics/design class with the mathematics teacher and the technology education teacher.

With the background Jake has developed through his college classes, he assists the high school students in using CAD (computer-assisted-design), word-processors, spreadsheets and calculators on a team project.

The students contacted the city government and offered to submit designs for handicapped access to the city park's nature trail. Working under the advice of a local architect Jake assists the students in learning the mathematics and design techniques they need to complete the project.

necessary to use technology and telecommunications to improve student learning. The infusion of language into teacher certification would result in more colleges of education adopting such models to ensure this result.

Who/What

The Office of Superintendent of Public Instruction, in cooperation with the State Board of Education, the Higher Education Coordinating Board and institutions of higher education will fund consortia of colleges of education and K-12 school districts to pilot new models of training for prospective teachers, incorporating new technology-based instructional strategies. The State Board of Education and OSPI, under advisement of PEAC will incorporate technology in the current study of performance-based teacher certification.

Budget Request

Budget Category	<u>FY '95</u>	<u>FY '96</u>	<u>FY '95-'97</u>
Grants to Teacher Education	\$ 160,000	\$ 340,000	\$ 500,000
Programs w/K-12 alliances			
Summer Institute	10,000	10,000	20,000
OSPI grant manager	41,100	45,000	86,100
Certification Study	<u>15,000</u>	<u>25,000</u>	<u>40,000</u>
Subtotal	\$ 226,100	\$ 420,000	\$ 646,100
	<u>FY '95-96</u>	<u>FY '97-98</u>	<u>FY '99-2000</u>
Biennial Budget Requests:	\$ 646,100	\$ 800,000	\$1,200,000

Bridging the Implementation Gaps

Recommendation #12

Information Policies

Gap

As technology and telecommunications are integrated into the K-12 educational system new information policies will be required to legally and ethically support the rights of all persons involved.

Recommendation #12

It is recommended that school boards review current policies to ensure that they appropriately address policy issues related to technology and telecommunications. And, that the Legislature provide funds to OSPI to coordinate the development and dissemination of model information policies related to technology and telecommunications for local school boards in cooperation with the Washington State School Directors' Association. Policy issues include: intellectual freedom; acceptable use policies for telecommunications services; privacy, security and confidentiality of data; etc.

Background

Telecommunications networks provide access to incredible resources, people, and services. Privacy, security, censorship and confidentiality are important issues within a print context, but with electronic access to information they are even more critical. Current policies on these issues may or may not be sufficient to address student, parent, administrator, and teacher/paraprofessional access to electronic networks as well as the collection, analysis and communication of various records.

"As technology and telecommunications are integrated into the education system, information policies are necessary to ensure the basic rights of all persons involved."

Education Technology Advisory Committee

Scenarios...

Sara hurries home to talk with her mom about an agreement she needs signed to get onto the Internet tomorrow at school. In reading through the information, her mom notes that some objectionable materials may be "happened upon" and asks her daughter if getting onto this "Internet" is really that important. Sara talks about the demonstration she saw today in school and how this would enable her to check out that idea about becoming an architect by "electronically chatting" with an architect on San Juan Island who is specializing in environmentally sound designs. She could actually do an internship with such a firm via Internet during her senior year and not have to leave their rural/remote community.

Her mom signs, asking that they continue to talk about what Sara runs into on Internet.

Expected Results

When the appropriate policies are adopted, and associated procedures developed and implemented, the rights of all individuals and institutions will be protected; and students, educators, parents and community members will understand their rights and responsibilities in the use of telecommunications products, services and communication avenues.

Who/What

The Office of Superintendent of Public Instruction, in cooperation with the Washington State School Directors' Association, will provide pertinent information, model policies, analyses of issues and training sessions for school administrators, educators and school board members on the issue of information policies related to technology and telecommunications.

Budget Request

Budget Category	<u>FY '95</u>	<u>FY '96</u>	<u>FY '95-'97</u>
Grants for Training	\$ <u>75,000</u>	\$ <u>75,000</u>	\$ <u>150,000</u>
Subtotal	\$ <u>75,000</u>	\$ <u>75,000</u>	\$ <u>150,000</u>

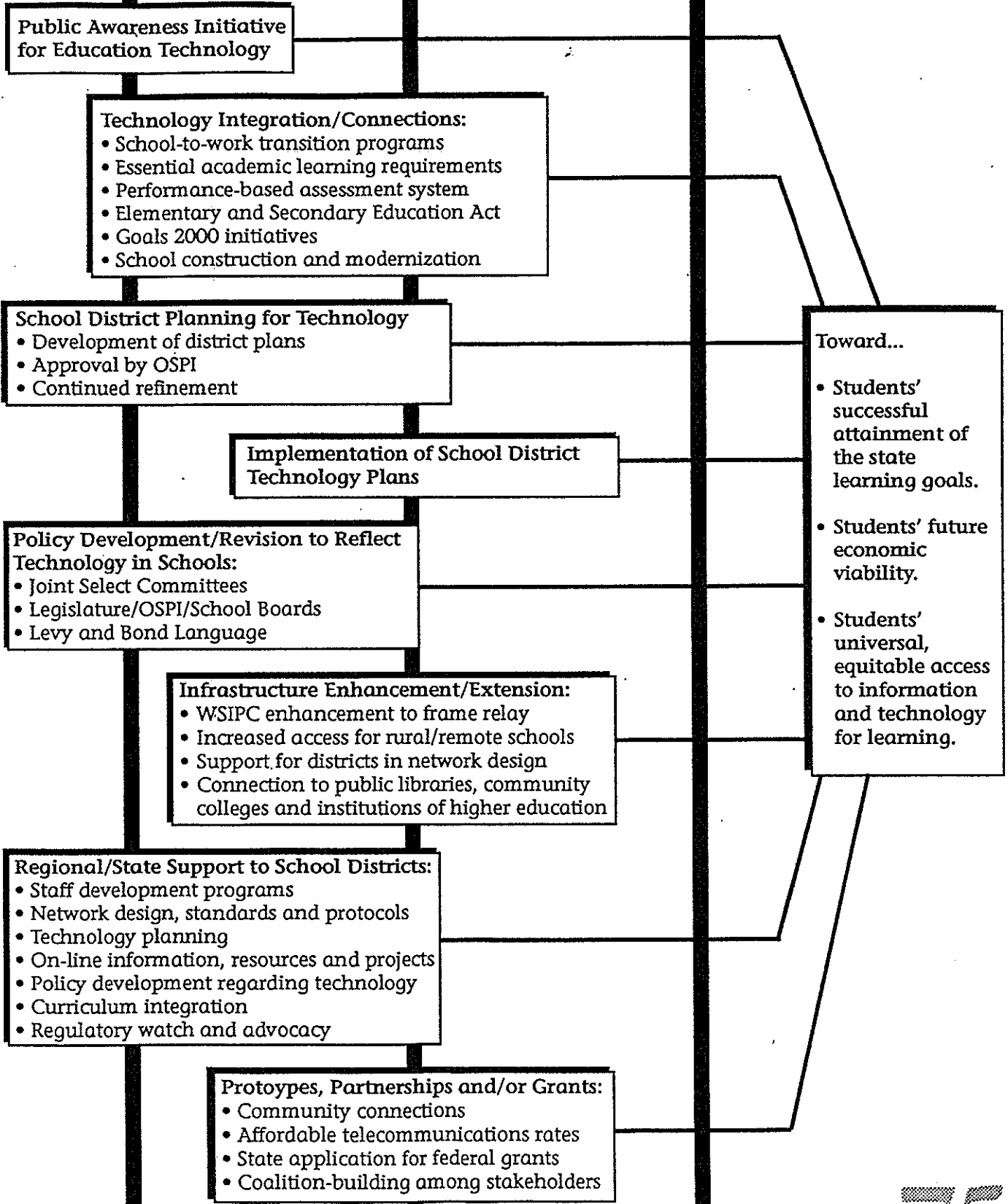
Biennial Budget Requests:	<u>FY '95-'96</u>	<u>FY '97-'98</u>	<u>FY '99-2000</u>
	\$ 150,000	\$ 75,000	\$ 75,000

Time Line

1995

1996

1997



Section (704) In conjunction with the plan required in section 703 of this act, the superintendent of public instruction shall prepare recommendations to the legislature regarding the development of a grant program for school districts for the purchase and installation of computers, computer software, telephones, and other types of education technology. The recommendations shall address methods to ensure equitable access to technology by students throughout the state, and methods to ensure that school districts have prepared technology implementation plans before applying for grant funds. The recommendations, with proposed legislation, shall be submitted to the appropriate committees of the legislature by December 15, 1993.

Section (705). A new section is added to chapter 28A.310 RCW to read as follows: Educational service districts shall establish, subject to available funding, regional educational technology support centers for the purpose of providing ongoing educator training, school district cost-benefit analysis, long-range planning, network planning, distance learning access support, and other technical and programmatic support. Each educational service district shall establish a representative advisory council to advise the educational service district in the expenditure of funds provided to the technology support centers.

Section (706). The superintendent of public instruction to the extent funds are appropriated, shall distribute funds to educational service districts on a grant basis for the regional educational technology support centers established in section 705 of this act.

Section (707). The superintendent of public instruction, to the extent funds are appropriated, shall distribute funds to the Washington school information processing cooperative and to school districts on a grant basis, from moneys appropriated for the purposes of this section, for equipment, networking, and software to expand the current K-12 education state-wide network.

Section (708). (1) The superintendent of public instruction may receive such gifts, grants and endowments from public or private sources as may be made from time to time, in trust or otherwise, for the use and benefit of the purposes of educational technology and expend the same or any income therefrom according to the terms of the gifts, grants, or endowments. (2) The education technology account is hereby established in the custody of the state treasurer. The superintendent of public instruction shall deposit in the account all moneys received from gifts, grants, or endowments for education technology. Disbursements from the account shall be on authorization of the superintendent of public instruction or the superintendent's designee. The account is subject to the allotment procedure provided under chapter 43.88 RCW, but no appropriation is required for disbursements.

Section 709. The superintendent of public instruction shall adopt rules as necessary under chapter 34.05 RCW governing the operation and scope of this chapter.

Section 710. Sections 701 through 704 and 706 through 709 of this act shall constitute a new chapter in Title 28A RCW.

Appendix A: Authorizing Legislation

ESHB 1209 Technology Sections, Chapter 336, Laws of 1993

Section 701. The legislature recognizes that up-to-date tools will help students learn. Workplace technology requirements will continue to change and students should be knowledgeable in the use of technologies.

Furthermore, the legislature finds that the Washington systemic initiative is a broad-based effort to promote widespread public literacy in mathematics, science, and technology. An important component of the systemic initiative is the universal electronic access to information by students. It is the intent of the legislature that components of sections 702 through 706 of this act will support the state-wide systemic reform effort in mathematics, science, and technology as envisioned by the Washington systemic initiative.

Section 702. Unless the context clearly requires otherwise, the definitions in this section apply throughout this chapter and section 705 of this act. (1) "Education technology" or "technology" means the effective use of electronic and optical tools, including telephones, and electronic and optical pathways in helping students to learn. (2) "Network" means integrated linking of education technology systems in schools for transmission of voice, data, video, or imaging, or a combination of these.

Section 703. (1) The superintendent of public instruction, to the extent funds are appropriated, shall develop and implement a Washington state K-12 education technology plan. The technology plan, which shall be completed by December 15, 1993, and updated on at least a biennial basis, shall be developed to coordinate and expand the use of education technology in the common schools of the state. The plan shall be consistent with applicable provisions of chapter 43.105 RCW. The plan, at a minimum, shall address:

- (a) The provision of technical assistance to schools and school districts for the planning, implementation, and training of staff in the use of technology in curricular and administrative functions;
 - (b) The continued development of a network to connect school districts, institutions of higher learning, and other sources of on-line information; and (c) Methods to equitably increase the use of education technology by students and school personnel throughout the state.
- (2) The superintendent of public instruction shall appoint an education technology advisory committee to assist in the development and implementation of the technology plan in subsection (1) of this section. The committee shall include, but is not limited to, persons representing: The state board of education, the commission on student learning, the department of information services, educational service districts, school directors, school administrators, school principals, teachers, classified staff, higher education faculty, parents, students, business, labor, scientists and mathematicians, the higher education coordinating board, the work force training and education coordinating board and the state library.

Appendix B: Definitions

Connectivity

Connectivity is the state of being linked electronically and/or optically. Included in the requirements for connectivity are the following: purchase, installation, operation and upgrading of the networks (e.g., network and electrical wiring, cabling, servers, routers, modems, related installations), purchase, installation, operation and upgrading of the electronic and/or optical equipment connected to the network (e.g., computers, CD-ROM players, videodisc players, peripherals), and training necessary for the effective operation and integration of this connectivity into the learning process.

Distance Learning

Learning which takes place in situations where the learners and the instructor(s) (and/or instruction) are at a geographical distance and are connected instructionally via telecommunications.

Education Technology

Education technology is the effective use of electronic and optical tools, including telephones, and electronic and optical pathways in helping students to learn. (Source: Chapter 336, Laws of 1993.)

Internet

Internet is a world-wide "network of networks" which literally connects millions of users across the globe to services such as electronic mail, research libraries, federal archives such as those from NASA (National Aeronautics and Space Administration), etc.

Learning Environment

A learning environment is a physical place where students are engaged in an educational process. The location can include school buildings, libraries, community centers, places of business, museums, etc.

Network

A network is an integrated linking of education technology systems in schools for transmission of voice, data, video or imaging, or a combination thereof. (Source: Chapter 336, Laws of 1993.)

Technology

- 1) Technology includes two components: A product—the tool that embodies the technology, and a process—the information base of the technology. (Source: Why Use Technology? Educational Leadership Vol 51 #7 April 1994. Kyle L. Peck and Denise Dorricott.)
- 2) Technology is the combination of human imagination, inventiveness and the tools and processes to transform ideas into reality. (Source: Wenk, Trade-offs 1970)

Technology Education

An activity-oriented program that develops proficiencies in technological design, problem-solving and decision-making process, and demonstrates the impact of technology on individuals, society and the environment.

Technology Related Investments

Technology related investments are electronic and/or optical equipment that help students learn. Such equipment includes computers, CD-ROM players, videodisc players, peripherals, electronic microscopes, CAD hardware, and associated networks (e.g., network and electrical wiring, cabling, servers, routers, modems, software, networks and other peripherals. Also included are expenditures incidental to the integration of the technology related investments into the learning process. (Source: WAC 392-140-545.)

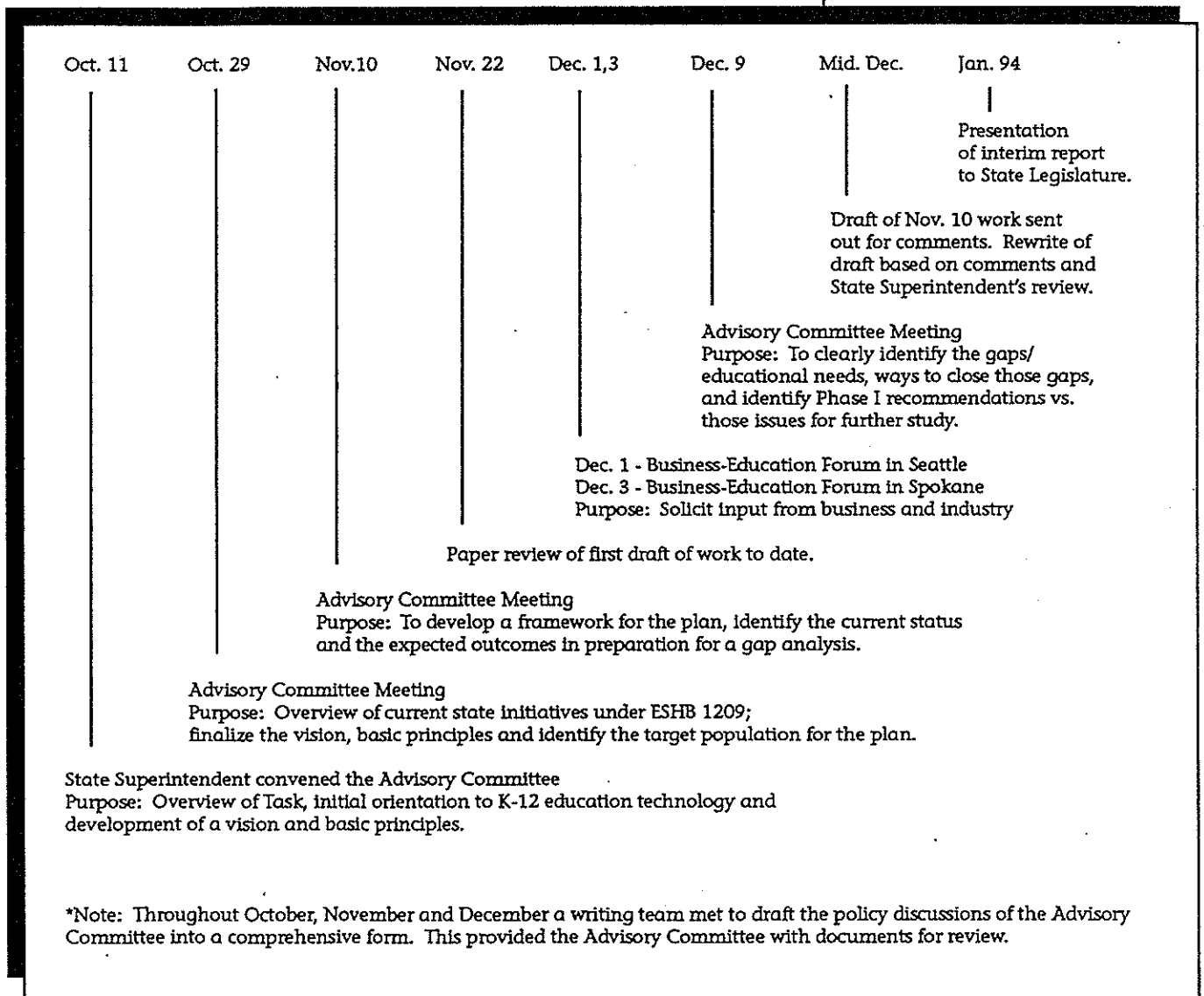
Telecommunications

Telecommunications is the act of communicating at a distance through the use of technology and an electronic/optical network.

Appendix C: Time Lines

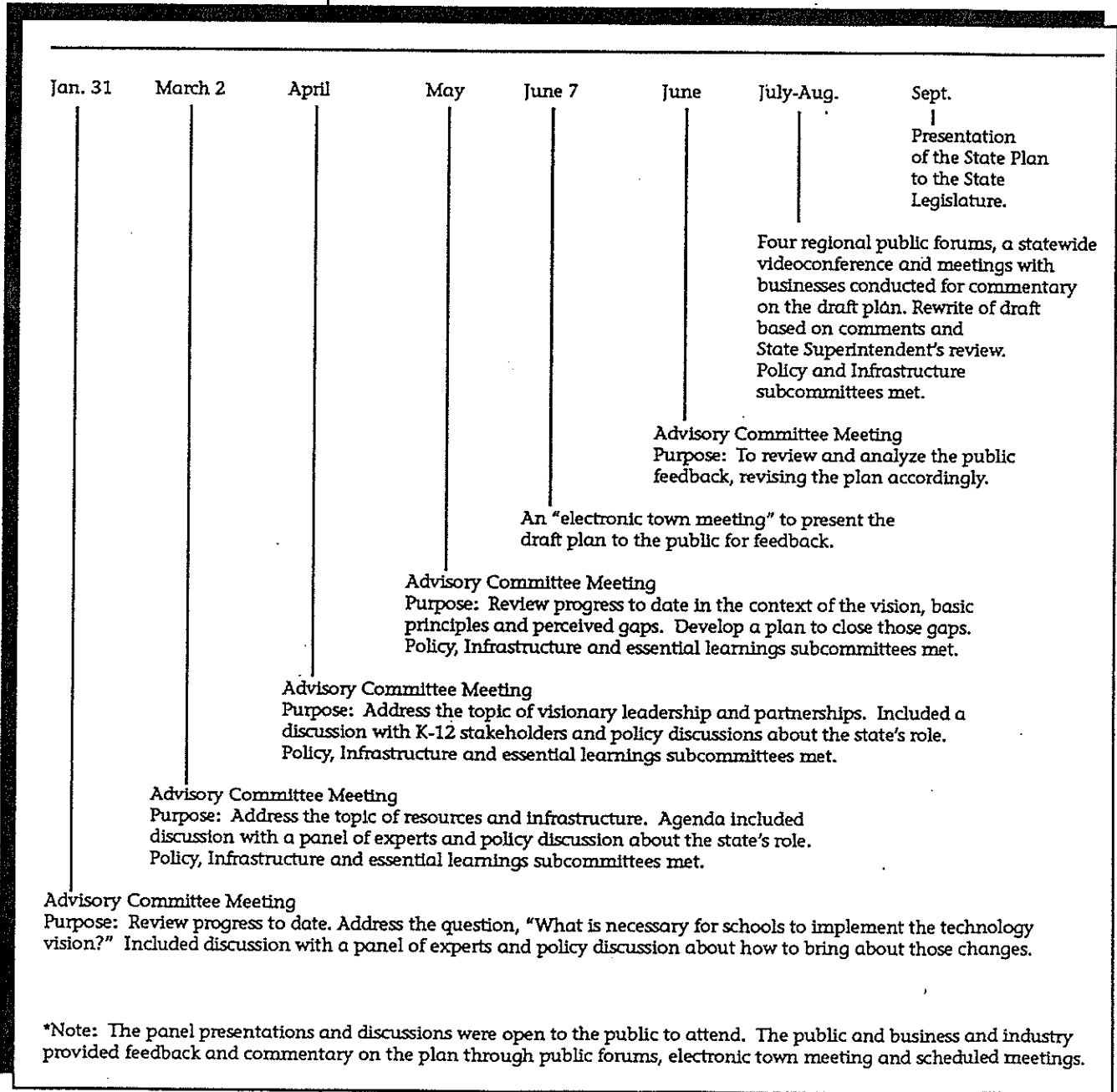
The Education Technology Advisory Committee worked through the fall of 1993 to establish a framework and Phase I recommendations for the State Technology Plan for K-12.

1993 Planning Time Line



1994 Planning Time Line

The Education Technology Advisory Committee continued to meet between January and August. The committee clearly defined the vision for education technology in schools. They conducted an indepth look at the current status of our schools, the current state initiatives in technology and planned the optimum state design for K-12 schools to follow in order that each student might reach the vision.



*Note: The panel presentations and discussions were open to the public to attend. The public and business and industry provided feedback and commentary on the plan through public forums, electronic town meeting and scheduled meetings.

"...most of this literature finds newer technologies to be either equivalent or superior to conventional instruction with regard to student learning..."

*The Office of
Education Research,
U.S. Department of
Education*

"...recent research consistently demonstrates the value of technology in enhancing student achievement."

*Sivin-Kachala & Bialo
Report on the
Effectiveness of
Technology in Schools
1990-1994
Software Publishers
Association*

However, it further reports that when Clark (1985) re-examined the studies in the meta-analysis on computer-aided instruction he found that many studies did not "control" for instructional methodology. When he re-analyzed to hold that factor constant he found virtually no effect related to instructional delivery media. The OERI document goes on to discuss the limitations of the "horse race" studies suggesting that, as is the case with this technology plan, it is rare that technology is introduced to simply change the instructional delivery mode without combining it with changes in instructional methodology, content changes, different groupings of students, varying use of time, etc.

A comparison of ten "horse race" studies involving videodiscs as an instructional delivery media in a variety of academic areas, suggests significant effectiveness of videodiscs when the content has motion-visual or aural components as discussed by Sivan-Kachala (1994). A second meta-analysis of 47 studies regarding videodisc usage with conventional instruction in military, higher education and industry indicate a strong positive effect on learning.

Overall conclusions from the Software Publishers Association's Report on the Effectiveness of Technology in Schools 1990-1994, indicate that "recent research consistently demonstrates the value of technology in enhancing student achievement." The authors, Sivin-Kachala and Bialo analyzed comparison studies relating student achievement in the curriculum areas of mathematics, reading, writing, science, English as a second language; among special populations such as early childhood, learning disabled, low-achieving students; and with technologies such as computers, videodisc and CD-ROM media, telecommunications and video.

Three of the studies are summarized below:

- Foster, Erickson, Foster and Torgeson developed a program called Daisy Quest (tutorial and practice) to increase phonological awareness (e.g., "one's sensitivity to, or explicit awareness of" the structure of sounds in one's language). Daisy Quest uses sophisticated digitized speech in assisting children to recognize identical sounds or sound combinations across words. In two separate studies and five different measures of phonological awareness, the computer-based approach was found to be significantly more effective than regular instruction.

- Niedelman used videodisc technology in an earth science class, comparing student achievement to a control group using a textbook-based instructional approach. The videodisc stressed causal relationships instead of topics and used charts as graphics organizers to synthesize and organize interrelated information. Students using the videodisc achieved at significantly higher levels than students receiving textbook plus hands-on instruction on a test of content knowledge and a test of science problem-solving skills.

•Smith conducted an evaluation of the National Geographic Kids Network telecommunications-based science activities with fourth and fifth graders. Results included: 1) significant increases in the students' use of graphs for organizing observations... while the control group did not; 2) significant improvement in data interpretation skills; and 3) significant improvement in place knowledge, map location, reasoning skills.

Contextualized Studies: The OERI discusses "contextualized" research which goes beyond the one-dimensional aspect of "horse race" studies in a "new approach to measuring the effects of technology-based innovations on student learning." The OERI report cites a 1991 research study by Salomon in which he likens the isolation of the instructional delivery media to asking "how much did the flute, in a 120-piece orchestra, contribute to the quality of the music." The use of technology in a contextualized learning environment contributes to the whole effect. The important question then is how each factor interacts with others to bring about the learning effect.

Riel's 1989 study of fourth graders using telecommunications is cited by OERI as an example of contextualized research. In this study, four classes in San Diego participated in an on-line telecommunications project with students from Hawaii, Mexico and Alaska in which they contributed news to the "newswire" and produced a collaborative newspaper.

As a result of this project, the reading and writing skills of the four San Diego classes jumped over one grade level. OERI further reports, "Those students who served as volunteer editors showed striking gains in language mechanics." The conclusion of the study was "the experience of editing others' writing produces more improvement than practice correcting one's own mistakes and that students are reluctant to edit the work of their classmates but much freer to criticize and correct the work of a distant peer." Again, in this contextualized study, computers and telecommunications linkages provided the ability for students to exchange and critique each others' work in a timely format.

Based on a significant number of contextualized studies, OERI concludes that "when used as part of an instructional approach involving students in complex, authentic tasks, technology can support the kind of transformation of student learning that is at the heart of education reform."

Overall research and survey findings conclude:

- 1) Educational technology has demonstrated a significant positive effect on achievement within all major subject areas, in K-16 and both regular education and special needs students.
- 2) Educational technology has been found to have positive effects on student attitudes toward learning and on student self-concept.
- 3) The level of effectiveness of educational technology is influenced by the specific student population, the software design, the teacher's role, how the students are grouped and the level of student access to the technology.

"When used as part of an instructional approach involving students in complex, authentic tasks, technology can support the kind of transformation of student learning that is at the heart of education reform."

*Office of Educational Research and Improvement (1993)
U.S. Department of Education*

- 4) Introducing technology into the learning environment has been shown to make learning more student-centered, to encourage cooperative learning, and to stimulate increased teacher/student interaction.
- 5) Courses for which computer-based networks were used increased student-student and student-teacher interaction, specifically with lower-performing students, and did not decrease traditional forms of communication.

Is technology in K-12 schools necessary to assure students' future economic viability (as well as that of Washington State)?

The Washington Roundtable's document, What's Expected of Today's High School Graduates? A Business Perspective on Skills for Living and Working, clearly articulates the role of technology in virtually every job classification referenced and links each of the state learning goals to work skills. The Roundtable further states that "our education system, quality of life and economy in this state are all connected."

In a much-quoted national report by the 1991 Secretary's Commission on Achieving Necessary Skills (SCANS), U.S. Department of Labor, technology is listed as one of the five workplace competencies needed for solid job performance. The report states that our present education system does not prepare students to enter a workforce that has been drastically altered by the globalization of commerce and industry, and the explosive growth of technology on the job. And the commission points out, "When all is said and done, the high performance future requires a radically different organization of work and a radically different kind of workforce. The ability of managers and workers to get the best out of new technologies, new processes and new markets remains our best competitive advantage."

The 1993 Interface Report, produced by the Washington Software Association, endorses many of the concepts of the SCANS report stating that "Today, the U.S. enjoys the largest market share; on a world-wide basis, for software... Providing our industry with work-ready students is a matter of economic necessity integral to our well-being as a region, as a state, and as a nation." Of the twenty-two skills and competencies identified in the report for work-ready software employees, the top two were interpreting and communicating information and using computers to process information.

These reports call for priority action by educators and industry leaders to begin NOW to integrate work skills, including those related to technology, into the K-12 curriculum.

"Our present education system does not prepare students to enter a workforce that has been drastically altered by the globalization of commerce and industry, and the explosive growth of technology on the job."

***The SCANS Report
1991 Secretary's
Commission on
Achieving Necessary
Skills, U.S. Department
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Title

Topic: Look for the topic or subject in this space

Materials: A materials list will be found in this space

Objective/Outcome: The objectives the activity will attain will be in this space.

Technology Adaption: Look for Internet spots in this space to help support the activity.

Teacher Procedures

- In this space will be what the teacher needs to complete the activity
-
-
-

Student Performance

- In this space can be found what the students will be doing during the activity.
-
-
-

Extensions: In this space in some of the lessons can be found other ideas and things to do in order to extend the lesson.

Benchmarks:

- In this space is the specific essential learnings and benchmarks that will be met by the activity.

Adapted from:

In this space is where the activity was originally found.