

# Technologies for Learning in a New Century

## A Systemic Planning Guide

*The West Des Moines Community School District's philosophy for computer and technology use is driven by the desire to integrate the computer into the student's educational experiences. The district will provide an educational climate which will encourage the appropriate use of computers and other technologies by students and staff in all instructional areas. Staff will assist students in acquiring the ever evolving skills to use technology ethically and effectively. The district will endeavor to keep abreast of advances in technology and the impact of those technologies on student needs.*

### THE ART OF SYSTEMIC PLANNING

#### ***The Purpose***

The purpose of systemic planning processes is to develop a model to move a district from its current state to one that better meets the needs of students in this 21<sup>st</sup> century.

#### ***The Rationale for Systemic Planning***

Systemic planning techniques have long been used in the corporate world to help clarify the future direction of an organization. Adapted to an educational environment, it allows the design of a vision for the future of teaching and learning and to create a plan for the actions necessary to accomplish that vision. Systemic planning creates ways to help a district identify priorities and shape its own future. It is used to better anticipate long term opportunities and develop plans, programs and processes to make that future a reality. It provides coherent and defensible criteria for making decisions about how to educate all students of all ages.

In 1991, a rationale for systemic planning for the West Des Moines Community School District was presented.

*"Many challenges and a variety of issues face our schools today. We know that in the not too distant future our students will be living in a different world than many of us have known.*

*"We are and will continue to be a global society. This changing world environment impacts us culturally, economically, and politically. We are and will continue to be a knowledge-based society. This changing environment impacts those who prepare the worker of tomorrow with different skills than those of the past.*

*“We cannot ignore these changes around us and must remain proactive and plan for the future.*

*“Schools today are examining a myriad of issues including learning readiness, national goals, America 2000, expanded early childhood programs, dropout prevention, at-risk students, outcomes based competencies, improved science and math education, parenting education, restructuring, transformation, cultural diversity, extended learning time, year round schools, technology, choice, and leadership. Obviously, no school system or organization can effectively deal with that many issues at one time.*

*“How will we in the West Des Moines Community School District plan so we proactively approach the many issues facing us?”*

*“Our district already has in place many mechanisms for planning. The annual planning process involves staff, parents, students and community members in identifying strategic issues from which the Board of Education sets district wide goals. In addition, plans have been written which provide direction for the district in curriculum, technology, facilities, finance, human resources and Community Education.*

*“However, with all of the challenges facing education today, it is imperative that we take a systematic or holistic look at what this district needs to do to remain effective in the 21st Century.”*

### **Challenges to Systemic Planning**

Systemic planning is one process which can lead to meaningful school change. Among the many challenges accompanying this kind of process are the following:

- There are numerous small reforms in the district, but it is difficult to see how they fit together.
- It easier to adopt short term, surface changes than it is to implement and sustain deep, substantive ones.
- Continuously sharing evolving information with all stakeholders in the district is difficult
- Leadership skills are required for everyone, not just administrators.
- Time is the biggest single barrier to implementing meaningful change.

### **District Beliefs on Systemic Planning**

Understanding these challenges, the Systemic Planning Steering Committee developed several underlying beliefs which were instrumental in the process of change.

- The primary focus must be on meeting and addressing the needs of children.
- Broad involvement builds understanding and ownership and increases effectiveness.
- Learning about the whole, not just the parts, is important.
- Process must give support to all stakeholders — visible, tangible, omnipresent support.
- The Systemic Planning Committee should model a learning organization.
- This is an educative process; people must realize, then subsequently acknowledge, society’s responsibility to reinvent education in order to ensure the success of our children in the information age.
- It is OK to continually reflect and challenge our assumptions.
- We need to have high expectations and believe improvement is possible in all aspects of the system.
- The learning system is impacted by both internal and external influences.
- Systemic planning is an ongoing process that will not end.
- This process is lifelong learning.
- We the district, have a strong basis from which to begin.

These beliefs and others guided the process during research, discussion, creation, and writing of the Task Force reports. The report is called *Building a Learning Community for the 21<sup>st</sup> Century*.

### ***Building a Learning Community for the 21st Century***

Excellence in education is not an end goal, but a journey. To continue this journey, the West Des Moines Community School District must dedicate itself to becoming a true learning community. A learning community is more than schools. It is more than classrooms, textbooks, and basic skills instruction. It is an organized commitment to inquiry, self-reflection, and service.

The traditional education paradigm places students as consumers of knowledge and teachers as disseminators of knowledge. The use of the terms learner/educator is intended to expand this traditional perspective to allow all members of our learning community to fluctuate between the roles of educator and learner, based upon their needs and circumstances. Whether it be the superintendent, members of the Board of Education, other central office administrators, principals, teachers, parents, community/business leaders, support staff members or students, each member of our community will be challenged with opportunities to educate. The boundaries implicit in role designations, will not limit us in serving as resources for one another or in continually expanding our own lifelong learning.

The Guiding Principles are the core beliefs of the district on its journey to excellence. These beliefs should drive decision making and should be evident in all the district's planning. The effects of the Guiding Principles are illustrated through the scenarios. The scenarios show the Guiding Principles at work. The success criteria are assistive in integrating the Guiding Principles and provide a framework for implementation.

Through the systemic planning process, five Guiding Principles have been developed for the West Des Moines Community School District. Success criteria were developed for each of these *Guiding Principles*.

#### **Guiding Principle: Continuous Improvement**

Quality is a design consideration in all decision making. Ongoing feedback provides students, staff, and community with vital information. Students, staff and parents are accountable for student learning, and the district continuously develops more ways to measure and assess the quality of its educational programming.

##### ***Success Criteria***

- Assessment provides continuous feedback through the learning process.
- Learners are involved in establishing goals and evaluating their progress toward these goals.
- There is a commitment to accountability -- not merely counting or measuring or assessing after the fact. Students, staff and parents are involved in a continuous dialogue about each individual's strengths, needs and development.
- Educators and learners improve in their function as researchers and are encouraged to act as risk-takers.
- Educators and learners move toward the goal of meaningful learning by utilizing both innovative and proven teaching and learning strategies.
- Long-term vitality and growth are ensured through shared responsibility in decision making and active participation in the change process.
- The district continuously reviews the use and application of resources, while systemically seeking out new resources.
- The district does not over emphasize the results or value of standardized tests.

#### **Guiding Principle: Personalized Learning**

##### ***Success Criteria***

- The curriculum is meaningful and authentic with an emphasis on real life issues such as the world of work; families; the environment; and local, state, national and international issues.
- Educators and learners are actively involved in the development of their educational program.
- Students understand the purposes of their learning.
- Constructive teacher response to student work is essential in promoting quality student work.

- Technology which incorporates up-to-date information and allows students to explore areas of interest is a part of the curriculum.
- Students are engaged in making decisions about what and how they learn.
- The development of basic skills performance is implicit at all grade levels and in every discipline.
- Time for research and investigation of a student's own questions is an integral part of the curriculum.
- Educators and learners are committed to lifelong learning.
- Learners are assessed utilizing a variety of assessment tools.

### Guiding Principle: Optimum Use of Human Resources

People contribute to the district by sharing their talents. Students, staff and community work with one another in the learning process. The district allocates its resources to provide the best opportunities for all learners.

#### *Success Criteria*

- Educators, families and the community assist students in developing the commitment and patience necessary to produce quality work.
- Learners serve not only as consumers of knowledge but as resources of knowledge. Educators continually model a commitment to lifelong learning.
- To meet the needs of all students, educators and learners work in partnership with parents, school support staff, community members, businesses, administrators, and teachers.
- Educators and learners communicate and share information freely and openly, developing close, trusting relationships.
- The district continuously expands its current definition of resources, in order to achieve and reward a high level of effectiveness.
- The district continuously assesses its needs and commits the resources necessary to meeting these priorities.
- Curriculum practices incorporate technology as a source of rich information and a vehicle for interactive learning.
- All students have the opportunity to be involved in experiences outside the school with adult mentors.

### Guiding Principle: Integration

The coordination of resources, programs and services are interrelated. Subjects in the curriculum are integrated. Learning takes place in the classrooms with multi-age/multi-ability groups. Technology continues to be an important instructional tool. Involvement of all stakeholders in the development of curriculum is encouraged.

#### *Success Criteria*

- Educators and learners share a conviction learning is essential for personal growth and societal progress.
- Interdisciplinary units are developed at all levels to make connections between the disciplines in order for students to develop a more realistic view of the world.
- Collaboration between teachers across disciplines is expanded in the development and adoption of curriculum.
- The district examines alternatives to the traditional school day and delivery system in order to accommodate learning.
- Educators and learners articulate and maintain a shared philosophy about the educational process and its goals and outcomes.
- Learners grow and develop in multi-age, multi-ability groups.

### Guiding Principle: Diversity

We value differences in others and find ways to share and appreciate those differences. Curricula and relationships reflect this belief. A wide variety of new and diverse resources are pursued. Seeking out many perspectives before decisions are made is important.

#### *Scenario*

Elementary students are discovering their connection to the world as they use the interactive fiber optics network to communicate with other young learners around the globe to author a book about the impact of family on their lives. Students in different geographical locations write various sections of the book, ranging from poetry to short stories.

Today, several West Des Moines third graders are exploring their family trees, looking for unusual characters to write about. One of the third graders is disabled, and she is assisted in her writing by a sixth grader, who asks probing questions to allow her to clarify her ideas and scribes as she dictates. Meanwhile another group uses the computerized information search system in the media center to study the cultures of their co-authors in other countries.

In a conference room at the high school, a committee made up of students, parents, teachers, and administrators meet to discuss significant revisions in the school's discipline policy. The School Review Board has noted an increase in problems related to the economic disparity of the district. Working with a sociology professor from the local university, the Board-appointed committee is striving to devise proactive solutions to the problems.

### ***Success Criteria***

- Curriculum practices are broad enough to accommodate the successful involvement of learners with diverse interests and abilities.
- Collaboration between general and specialized educators is expanded in order to meet the diverse needs of learners in heterogeneous classrooms to the maximum extent possible.
- Educators and learners work interdependently, valuing each other and the contribution each makes to learning.
- The curriculum promotes understanding of and sensitivity towards religious, racial, gender, cultural and other differences among people.
- Educators and learners share information freely, and value all perspectives in identifying and solving problems.
- Each district-wide curriculum committee includes representation from the community.
- Educators and learners take risks in a climate of trust conducive to personal growth and intellectual development.

### **Recommendations**

As a result of extensive research, discussion and feedback from numerous stakeholders the following are recommended.

- Adopt systemic planning as an ongoing process to address the needs of learning now and into the future.
- Coordinate all current and future planning functions within the district and integrate the systemic planning process into all planning.
- Utilize the five Guiding Principles as the foundation for all future planning so the district will continue to improve and will meet the needs of all learners in the 21st Century.
- Develop an implementation design that defines how the Guiding Principles will be used in the normal conduct of business. The findings from the three task force reports should be used extensively in the development of these plans.

## ADMINISTRATIVE AND INSTRUCTIONAL TECHNOLOGIES

*What matters to us is not what technology is, but what technology does in support of learning.*

The Guiding Principles delineated in the report *Building A Learning Community for the 21st Century* provide direction in implementing this philosophical belief. The systemic planning model provides a holistic approach to the implementation, adoption and adaptations of technology's promise for this learning organization.

We seek *continuous improvement* as we assess our learners' needs. This includes the ever changing and growing role of technology in the learning environment.

- Gathering information from all members of the learning community will provide us with the means to identify and quantify the ever-changing needs of our learners.
- Data management increases in importance as the organization strives measure the effectiveness of decisions.

We seek to enhance *personalized learning* through the use of technology.

- To free and empower our learners, teachers and leaders through technology.
- To increase modes of communication among members of the learning community.

We seek efficiency and effectiveness in the allocation of our *resources*.

- To achieve not only fiscal efficiency but also in the best uses of our human resources.
- To provide an efficient and adequate support infrastructure for all technology initiatives.

We seek *integration* of learning experiences with an integrated use of appropriate technologies.

- Integration is the planned and purposeful combining of at least two separate components. Technology can assist in providing links between different curricular areas.
- The use of technology tools by students will be as seamless as possible. Weaving technology into student learning experiences allows for a natural growth of skills and sophistication.

We seek *diversity* by providing a wide variety of technology resources to our learners.

- To assure equitable access to the diversity of our country, the world and multiple types of technology in a planned way.
- To provide a variety of learning environments which address the limits of time of day and year, limits of place and the limits of length of time to learn.

The West Des Moines Community School District strives to accomplish this by:

- Focusing the goals of technology upon learner outcomes.
- Linking learners, staff, parents and patrons to each other within our community and throughout the world.
- Exposing learners to positive examples and challenges in the use of technology in a learning community.

- Providing equitable access to and use of technology by all learners in terms of quality of experience and usage.
- Establishing an appropriate expectation level of technology skills on the part of staff and learners.
- Providing adequate and necessary staff development activities to support staff growth in the use of appropriate technologies.
- Emphasizing the acquisition of quality courseware, software, and hardware to achieve high levels of learning.
- Maintaining an “evergreen” philosophy in the maintenance of technologies, seeking to maintain an environment in keeping with advances in technology.
- Providing appropriate levels of support, service and resources to assure that existing technologies function properly and operate effectively in the learning environments and support the evolving uses of instructional technologies.

The district technology programs will:

- Be directed toward goals which focus upon the needs of students, teachers and staff as learners in this 21<sup>st</sup> century.
- Match technological activities with the needs of our learners.
- Move to interdisciplinary classroom opportunities which maximize instructional activities which make seamless use of instructional technologies in the educational experiences for our learners.
- Encourage learners to create their own experiences rather than replicating ours by making technology a tool of personal empowerment.
- Emphasize the meaningful use of technology, not technology itself.

The Guiding Principles provide a format for the delivery of our Technology Guide in the following ways:

#### I. Continuous Improvement

- A. Through the establishment of alliances with high quality business organizations, the district will enable its learners to have access to the advice and counsel of leading edge practitioners developers and researchers.
- B. The constant and continual improvement of the quality of all programs will be a focus of assessment endeavors.

#### II. Personalized Learning

- A. Courseware designed to develop learner competencies will be provided.
- B. Connectedness of learning activities and learners, teachers, parents and community will be achieved.
- C. Teaching and learning with computers will be the primary methodology used.
- D. Technology will provide more individualized opportunities during the school day and at other times.

### III. Optimum Use of Human Resources

- A. Training of staff members will utilize a cascade approach, extensive support and on-going coaching.
- B. A practice of capturing monies to enable a continual schedule of replacement and upgrade of the total technology system (an “evergreen” approach) will be designed.

### IV. Integration

- A. Learner projects which utilize a variety of sources of knowledge will be encouraged.
- B. Technology will be used as a tool and resource to enhance learning in all K-12 subject areas.
- C. The technology will be serviced and maintained at an optimum performance level.

### V. Diversity

- A. A variety of technology resources will be made available to our learners, such as, but not limited to, Internet, multi-media stations, digital information reservoirs, etc.
- B. The Internet and other telecommunication technologies will be used to eliminate issues of time and distance for our learners. This will allow our learners to reach out to the diverse peoples and cultures of the world.

## STUDENT LEARNING WITH AND ABOUT TECHNOLOGY

### **Introduction**

The West Des Moines Community School District is committed to providing the best possible education to all students. To that end, the district continually addresses the need for change, both in what students learn and in how they are to learn. With the dramatic and dynamic developments in educational technology that mark the world in which we live, the district accepts the challenge of addressing the new imperatives for students to become technologically literate and for them to use technology effectively. Students are asked to not only learn of technology's power and importance, but to apply their skills to the business of learning. The application of technology to their learning will provide authentic applications which will carry into their post secondary experiences and careers. Therefore, technology and information literacy for both staff and students has become an imperative.

Technology is a positive force in the classroom when teachers use it well. Technology training opportunities help staff become more aware of how the instructional use of technology can enhance the delivery of curriculum content and actively engage students in thinking and learning. The students themselves are powerful resources in innovative uses of technology and will be encouraged to help each other as well as their teachers.

### **Statement of Philosophy for Instructional Technology**

*The West Des Moines Community School District's philosophy for computer and technology use is driven by the desire to integrate the computer into the student's educational experiences. The district will provide an educational climate which will encourage the appropriate use of computers and other technologies by students and staff in all instructional areas. Staff will assist students in acquiring the ever evolving skills to use technology ethically and effectively. The district will endeavor to keep abreast of advances in technology and the impact of those technologies on student needs.*

It is significant to note the philosophy statement includes both students and staff.

- Teachers will use technology as an integral part of instruction.
- Students will make use of technology to access, manipulate and communicate information.
- Training opportunities will be provided to assist teachers to successfully use and integrate information technologies into instruction.
- Access to technology will be equitable throughout the district.

### **Curriculum Strands and Goals**

In conjunction with the statement of philosophy, the following strands and goals focus on learning technologies in a *just in time* model and weaving the use of technology into the daily activity of learning.

#### Technology for Solving Problems

The student will view technology as a tool to aid in solving problems. **Problem solving** is the means by which a student uses previously acquired knowledge, skill and understanding to satisfy the demands of an unfamiliar situation. Students will actively seek to construct meaning from the sources of information they encounter and will create products that shape and communicate that meaning effectively. Students will apply strategies for solving problems and use appropriate tools for learning, collaborating and communicating.

The student will have an understanding of the fundamental operations typical in most application programs.

The student will be able to select appropriate application software to aid him/her in solving a problem.

The student will gain the skills necessary to retrieve and organize information from electronic databases and information service systems whether they be local or Internet-based.

The student will have the ability to manipulate text and graphics with a word processor or other productivity tool to produce publications and other creative works.

The student will have the ability to produce multimedia presentations which assist in communicating information.

The student will have the ability to organize information by manipulating data within an existing database or spreadsheet or by building an original database or spreadsheet.

The student will have a rudimentary understanding of the computer science and computer programming as related to the use of programs and the problem solving process.

## Technological and Information Literacy

The student will become a literate user of technology in our information and communication age society. **Technological and information literacy** is a general knowledge of the abilities, limitations, and operations of different technologies as well as technology's role in society. Knowing how to obtain and use information properly is increasingly essential both for the students' success in school and for their personal and professional development as socially responsible adults. Students will gain the understanding needed to learn and evaluate new applications as they relate to their personal endeavors.

The student will access information efficiently and effectively.

The student will be aware of the ethical implications when using a computer or other technology resources.

The student will practice critical thinking skills in evaluating different resources, especially Internet resources.

The student will be aware of the different career opportunities associated with computers and other technologies.

The student will become familiar with the historical development of technology and its impact on society.

The student will be able to identify the major components of a multi-media computer, a computer network, and understand the functions of those components.

The student will learn the proper care of a computer's hardware components.

The student will properly operate and apply related technologies, such as digital cameras, scanners, video technologies, and audio systems.

Most of the technology goals are met by infusing the current curriculum with activities which allow students to use the technology in their work. An example is word processing of papers written for a class. To raise student technology awareness, discussions of the advantages of using technology for given tasks can be held in the context of the assignment.

### ***Student Expectations (ISTE NETS)***

Starting back in 2000-01 school year, staff began engaging in activities to increase support for the themes used by the National Educational Technology Standards (NETS) from the International Society for Technology in Education (ISTE).

The ISTE student standards are as follows:

#### ISTE NETS for Students

The technology foundation standards for students are divided into six broad categories. Standards within each category are to be introduced, reinforced, and mastered by students. These categories provide a framework for linking performance indicators within the Profiles for Technology Literate Students to the standards. Teachers can use these standards and profiles as guidelines for planning technology-based activities in which students achieve success in learning, communication, and life skills.

#### Technology Foundation Standards for Students

##### Basic operations and concepts

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

##### Social, ethical, and human issues

- Students understand the ethical, cultural, and societal issues related to technology.
- Students practice responsible use of technology systems, information, and software.
- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.

### Technology productivity tools

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

### Technology communications tools

- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

### Technology research tools

- Students use technology to locate, evaluate, and collect information from a variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.

### Technology problem-solving and decision-making tools

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

These parallel district themes. A varied group of teachers will assist in providing model lessons which tie these standards to national and West Des Moines standards and benchmarks. The goal is to have an electronic resource of lesson examples. Each activity or lesson will reference both district and NETS standards. This follows the district philosophy of not teaching technology skills in isolation of the learning already being done by the students.

### Keyboarding Instruction

The effective use of a computer demands the ability of a user to enter data in an efficient manner. Therefore, introductory keyboarding instruction will be offered to all students per the following schedule.

3rd grade: 15 minutes/day for 15 days

4th grade: 15 minutes/day for 10 days (reinforcement)

5th grade: 15 minutes/day for 10 days (reinforcement)

Reinforcement of keyboarding skills is provided in the junior high consumer education program required of all seventh grade students.

The expected result of keyboard instruction would be that the student will acquire keyboard entry skills which allows him/her to process data at a speed similar to the ability to print or write.

The high school program offers keyboarding courses which focus on generally accepted formats for communications, such as business and personal letters and research writing. Students will be encouraged

to take this instruction to increase the effectiveness and efficiency of their communications and to learn standards for typical documents.

## STAFF EXPECTATIONS

The West Des Moines Community School District is a district of high expectations. One expectation is our staff will carry out implementation of a new curriculum. A reciprocal expectation is the district will provide necessary training and support for implementation. The infusion and integration of technology into the curriculum is an on-going and evolving process. New technologies continue to be developed which impact teaching and learning. Curriculum revisions will examine and acquire new hardware, software and information resources to be integrated. Professional development will assist staff to incorporate these new environments and opportunities.

The evaluation of staff utilization of technology will be the province of the principal. The district will help facilitate this responsibility by providing access to quality data and training in the appropriate interpretation of the results.

### ***Instructional Technology Competencies for Certified Staff***

#### Curriculum

The staff member will:

1. be familiar with and utilize curriculum-technology integration strategies successfully in their curriculum.
2. evaluate and use computers and related technologies to support the instructional process.
3. evaluate and use educational software and associated documentation.
4. use their knowledge of effective instruction to apply computer software to areas such as problem solving, process writing, data collection, communications, presentations, and decision making.
5. be aware of the process and availability of the Iowa Communications Network within the district.
6. practice and share knowledge of equity, ethical, legal and human issues to technology.

The staff member will:

1. access the site network using the appropriate network security processes.
2. be able to organize and maintain electronic files.
3. be able to use the software for professional and curricular uses.
4. be able to direct their printing to another location on the network.
5. understand the necessity of security and passwords.
6. abide by board policy and appropriate administrative rules and regulations.
7. abide by federal copyright laws and assist students in appropriate acknowledgement and use of copyrighted materials.

#### Software

The staff member will:

1. be able to use software from the following categories and assist students with their use.
  - word processing/desktop publishing/production
  - creativity and graphics manipulation
  - curriculum-specific (software currently being integrated)
  - spreadsheets, databases, and grading software

- Internet browsers and communication tools
- 2. be able to successfully use search strategies using the *On-Line Public Access Catalog* in their building media center and encourage and assist students with its use.
- 3. be able to successfully use and teach search strategies using information resources, including Internet resources, and encourage and assist students with its use.

Additional technologies add to the scope and expanse of opportunities available for enhancing teaching and learning. Staff members will be familiar with each technology as is appropriate for their curriculum specialty and grade level. These technologies include, but are not limited to CD-ROM applications, videodisc, digital cameras, video cassette players/recorders, media retrieval systems, classroom telephones, video tape camera, digital movie camera, projection panels or data projectors, scanners, and computer-to-television scan converters.

### Curriculum Integration

The State Code of Iowa states, "The board shall adopt a plan for the efficient and effective use of technology in the instructional program. The plan shall provide for the understanding and use of current technology by staff and students and shall include a procedure to review the district's utilization of technology as a teaching and learning tool."

To this end, each staff member should identify appropriate methods of using technology in teaching of curriculum. The focus of the district philosophy should be the integration of technology into the existing curriculum. All staff members will assist students in identifying applications for using technology in their studies and in using technology appropriately. The applications of technology in the curriculum will be reflected in each staff members' lesson plans. The district should provide support for staff in integrating technology in their lessons by providing appropriate staff development activities, professional support staff, and appropriate software.

### **ISTE NATIONAL EDUCATIONAL TECHNOLOGY STANDARDS (NETS) AND PERFORMANCE INDICATORS FOR ALL TEACHERS**

The ISTE *Educational Technology Foundations Standards for All Teachers* reflect professional studies in education providing fundamental concepts, knowledge, skills and attitudes for applying information technology in educational settings. It is the responsibility of teachers and the District to provide opportunities for achieve these standards.

All classroom teachers should be prepared to meet the following standards and performances:

#### Technology Operations and Concepts.

Teachers demonstrate technology literacy. Teachers:

- A. demonstrate introductory technology literacy knowledge, skills, and concepts (described in the ISTE NETS Technology Foundation Standards for Students).
- B. demonstrate sustained growth in technology knowledge and skills to stay abreast of contemporary and emerging technologies.

### Planning and Designing Learning Environments and Experiences.

Teachers plan and design effective learning environments and experiences supported by technology. Teachers:

- A. design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners.
- B. apply current research on teaching and learning with technology when planning learning environments and experiences.
- C. identify and locate technology resources and evaluate them for accuracy and suitability.
- D. plan for the management of technology resources within the context of learning activities.
- E. plan strategies to manage student learning in a technology-enhanced environment.

### Teaching, Learning, and the Curriculum.

Teachers implement plans that include learning strategies and methods while applying technology to maximize student learning. Teachers:

- A. facilitate technology-enhanced experiences that address content standards and student technology standards.
- B. use technology to support learner-centered strategies that address the diverse needs of learners.
- C. apply technology to develop students' higher order skills and creativity.
- D. manage student learning activities in a technology-enhanced environment.

### Assessment and Evaluation.

Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies. Teachers:

- A. apply technology in assessing student learning of subject matter knowledge and skills using a variety of assessment techniques.
- B. use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.
- C. apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity.

### Productivity and Professional Practice.

Teachers use technology to enhance their productivity and professional practice.

Teachers:

- A. use technology resources to engage in on-going professional development and lifelong learning.
- B. continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.
- C. apply technology to increase productivity.
- D. use technology to communicate and collaborate with peers, parents, and the larger community to nurture student learning.

**Social, Ethical, Legal, and Human Issues.**

Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in K-12 schools and apply those principles in practice. Teachers:

- A. model and teach legal and ethical practice related to technology use
- B. apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.
- C. identify and use technology resources that affirm diversity
- D. promote safe and healthy use of technology resources
- E. facilitate equitable access to technology resources for all students

***Roles and Responsibilities***

The effective implementation of a program which has such far reaching goals, expectations and importance cannot be accomplished without the support and dedication of the whole staff. The following delineates some of the responsibilities within a building for the effective implementation and integration of technologies throughout the curriculum.

At the building level, responsibilities for implementation of the technology program would be as follows:

**Building Administrator**

- supervision of the building curriculum program
- liaison to director of technology and the instructional technology support coordinator
- determine and communicate building staff development needs to the human resources division
- monitor the integration of technology in the curriculum
- chair the building technology support committee
- select members for the building technology support committee
- administer computer check out procedures
- coordinate information program for parents and patrons of curricular applications of technology occurring at their site

**Instructional Technology Advisory Council Member (ITAC)**

This a classroom teacher from each site who volunteers to assist district instructional technology efforts.

- serve as a communication link for the building to the district instructional technology advisory committee
- assist the staff in installation of software
- assist with the in-service on copyright laws and implications
- assist staff in software evaluation and procurement
- assist site administrator in determining in-service needs
- assist with inventory of hardware and software
- assist staff with routine operations, care and maintenance of technology equipment
- assist with staff development activities for instructional technologies
- provide orientation to site and district technologies and procedures for new staff members
- member of building technology support committee
- assist in maintaining network accounts for site staff

### Media Specialist

Media specialists are also members of the district Instructional Technology Advisory Council.

- provide in-service for on-line public access catalog
- assist the coordinator and staff in installation of software
- in-service staff and students on copyright law and implications
- assist staff in software procurement and evaluation
- assist principal in determining in-service needs
- assist with inventory of hardware and software
- assist staff with routine operations, care and maintenance of technology equipment
- member of building technology support committee
- provide orientation to district technologies for new staff members
- assist in maintaining network accounts for site staff

### Media Assistant

- Assist with inventory of hardware and software
- Assist staff with routine operations, care and maintenance of technology equipment
- Member of building technology support committee
- Assist in providing in-service for on-line public access catalog

### Instructional Technology Resource Teachers (7-12)

- Assist certified staff in learning software applications
- Assist certified staff in writing lesson plans which integrate technology
- Co-teach with certified staff on request as they develop confidence with technology-enriched lessons
- Assist students with technology-based projects
- Encourage and support district technology programs
- Assist with trouble shooting and inventory
- Member of ITAC

### Classroom Teacher

- Assist with inventory of hardware and software
- Assist in evaluation and selection of software
- Skill teaching
- Plan and implement lessons that utilize technology appropriately
- Model technology use for students
- Participate in appropriate staff development activities
- Instruct students on appropriate and ethical use of technology resources
- Monitor student use of technology resources

## IMPLEMENTATION

To implement the goals and objectives of Instructional Technologies for Learning in a New Century, the district must provide modern and efficient technology systems for students and staff in each building. The following characteristics are proposed to provide technology which will meet stated objectives.

1. The systems should provide easy access to instructional and application software throughout the building. This means the centralization of much of the delivery of software from a network server<sup>1</sup>.
2. The systems should accommodate technology work centers for large groups. Although a ratio of one computer per student is ideal, a ratio of one computer for every two students is sometimes acceptable. The work centers should be designed to accommodate a full classroom of workstations (28-30).
3. The systems should accommodate small group work centers in or near the classrooms.
4. The systems should provide teachers easy access to the available software for planning curriculum integration.
5. The systems should have the capability for every room to have access to the building media center's electronic card catalog system.
6. The system will maintain software standards which provide for efficient sharing of information and documents across the district.
7. The systems should deliver standard office productivity software tools for word-processing, spreadsheets, presentations and communications.
8. The systems should support high quality output for materials designed by staff and special projects written by students.
9. Each building should be provided with access to new technologies as they become available and are deemed important to the delivery of instruction.
10. The systems should provide for expansion in the number of workstations and additions of new technologies and features.
11. On-site support persons must be identified for each site. Each support person will be provided training to assist in the implementation, staff development and trouble-shooting. In most instances, this will be the media specialist and the instructional technology advisory council member.

Every district site will be connected to the administrative network with workstations available to principals, assistant principals, administrative assistants, counselors, nurses, and office support personnel. All staff at the Learning Resource Center will be provided access to the administrative network.

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Continued support for new technologies is important to the maintenance of high standards. Curriculum needs will drive the acquisition and implementation of new technologies. Hardware and software additions and replacements will be based on new technology developments and assessment of learners' needs. Assistive and adaptive technologies will be made available as required for individual students. Older systems will be replaced with upgraded systems, sold or put to less demanding uses as appropriate. This *evergreen* philosophy will be used to keep technology refreshed while still providing for growth.

### ***Training/Professional Development***

Professional development is identified as the most critical element in ensuring successful implementation of the district's instructional technology program. Sharing ideas and techniques in the use of educational technologies is important to encourage creativity and support innovation. The effectiveness of professional development is dependent upon its quality and relevance. Follow-up support will be provided to teachers, administrators and support staff. It is critical the leadership of the district be dedicated to the success of the program and that school administrators understand and support the educational applications of technology in the classroom, providing leadership to the program.

Technology is viewed by the West Des Moines Community Schools as a major tool in teaching and learning. The curriculum-based, student-centered training will be on-going and integrated on a K-12 basis. Enhanced training for incorporating technology will be aligned with the district's curriculum review and adoption cycle.

The following aspects of a professional development plan for infusing educational technology are viewed as vital:

- Instruction in the application of instructional technologies is an integral part of all curriculum and instructional professional development, with an emphasis on the ways in which technology serves as a part of varied instructional strategies selected to meet curriculum objectives and student needs and interests.
- Professional development which includes uses of educational technology is provided in multiple venues in order to assure equal access to all teachers.
- All professional development is tailored to meet the needs of the participants.
- Professional development will be planned and available for support staff as is appropriate for the staff position.
- Carefully constructed courses are developed to ensure the integrity and consistency of the program.
- All professional development includes the training on the equipment equivalent to the equipment the employees will use at their buildings, and affords opportunities to expand the participant's skills on other types of equipment and software.
- Professional development is ongoing, providing long term support for implementation. Frequent follow-up for support and progress checks by site administrators and staff development providers is strongly encouraged.

- A train-the-trainer model provides for site-based experts and encourages staff leadership and a culture of sharing.
- On-going evaluation, both specific professional development offerings and of the overall program, takes place as the Human Resources Division monitors the activities provided by the district and activities initiated at the local sites.
- Personnel at each site are trained to provide technical support for the implementation of technology as part of effective instructional strategies. ITAC members are strongly encouraged to facilitate frequent discussion groups to grade level or curricular area. This fosters increased awareness, varied applications, and innovation.
- A district technology training center will be established in the Learning Resource Center to include opportunities to preview software, review and practice with district standard software, and to develop successful skills in uses of instructional technologies. Sample lesson plans, curriculum guides, and comparable facilities will be provided at the technology center. New hardware and software will be maintained to model new technologies and applications.
- Professional development provides all teachers, instructional assistants and administrators a logical, sequential series of steps focused on the ways in which curriculum and instruction can be **strengthened** and **enriched** through a wide range of technological applications.

In general, the workshops and in-service activities revolve around three modes.

- **Awareness** of the potential for strengthening curriculum and instruction through technology. This mode includes presentations that model uses of educational technologies in content area and instructional strategy workshops, conferences on educational uses of technology, and workshops focused on educational uses of specific kinds of technology. Awareness level professional development includes active participation, affording teachers experiences in using various kinds of technology as they explore the ways in which technology can be used to strengthen instruction. Peer discussions of implementation and integration strategies are key to raising awareness of effective strategies.
- **Application** of varied uses of educational technology. This type of activity includes workshops focused on specific types of technology use, on varied types of technology to meet one focused educational need, or on use in one focused curriculum area.
- **Innovation** and project dissemination. These staff development programs provide opportunities for teachers who are using instructional technologies in innovative ways or whose students have been involved in projects using technology to meet and share. These professional development activities might well include students sharing with teachers and other students the ways they are using technology to enhance their education. Innovation can also be fostered by providing extra-work schedule funding for research or additional funds for unique hardware or software. The number of funded projects would be based on available funds and curricular goals to be addressed.

Professional development programs involving technology are coordinated through the Human Resources Division and its staff development advisory council. The instructional technology coordinator and technology director are active members of the staff development advisory council.

The Human Resources Division is responsible for the identification and development of courses to be offered, with input from the staff development advisory council, Teaching and Learning Services Division, building administrators, and other interested groups. Site-based training, provided by the site staff and trainers from other sites, meet the immediate needs identified through local site needs assessment. Assistance from the Human Resources Division and Teaching and Learning Services Division will be provided as needed.

Participants should, when possible, be given the opportunity to gain credit for their efforts. Credit for the sessions should be coordinated through the Human Resources Division. Other shorter sessions which highlight a specific skill or piece of software should also be offered.

An intensive effort should be made to identify qualified personnel who would be professional facilitators for the sessions in their area of interest and expertise. As the staff grows in expertise, this pool of talent for others to tap into will grow.

Several methods can be used to foster technology skills development. Examples include:

- sharing sessions after school hours in each building.
- sharing sessions for grade level/subject area specific methods.
- distance learning and/or Internet-based instruction for staff (and students).
- send district personnel to informative conferences to ensure an updated staff development program. Session concepts should be integrated into the district plan.
- send district personnel workshops.
- college and university courses.
- summer workshops and sessions for those unable to participate during the regular year.
- other potential training sources include university partnerships, business partnerships, and individuals such as parents and friends.
- students should not be overlooked as resources, as they have many experiences.