A Guide for Leading Professional Development Activities for Campus Leaders and Administrators
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Introduction

Promoting Technology Leadership is a series of professional development activities designed for school administrators, such as principals and assistant principals, at various levels who have some understanding and experience with school improvement and instruction, school policy, and planning. The purpose of the various activities in this portfolio is to help these school leaders learn more about technology planning and integration and develop a personal vision and concept for technology implementation and integration for their campus or school district. Participants are introduced to the ISTE (International Society for Technology in Education) administrator standards to gain a better understanding of the multiple roles of technology in educational settings.

Ideas for the portfolio activities were initially generated by a collaboration of administrators, campus leaders, and professional developers and illustrate how technology can be integrated into the school improvement process, enhance classroom instruction, be used for administrative tasks, and serve as a tool for planning and evaluation.

The Promoting Technology Leadership portfolio of activities has two levels: Foundations and Application Challenges.

Level One: Foundations

This introductory 2-day, face-to-face session is designed to help school leaders develop a vision for technology and understand the broader picture of the role of technology in school administration. Discussions focus on the role and impact of state and federal programs, current educational issues relating to technology, and related research practices.

Foundations is composed of four separate units briefly described below.

Unit 1: Instructional Uses of Technology
Participants will engage in a hands-on exploration of several technology applications and then observe a technology-integrated classroom video episode. This will help participants gain a deeper understanding of technology integration in the classroom, what it looks like, and what it should accomplish.

Unit 2: Evaluating Educational Software for the Classroom
This activity includes a comparison and discussion of different types of technology applications and their appropriate uses to support student learning. Participants will also explore various research studies regarding the impact and effectiveness of technology in classroom settings.

Unit 3: Leading with Technology
Participants will observe and discuss two school principals and their administrative roles regarding technology. This activity will also introduce the different ways that technology can be used for noninstructional uses in school settings.
Unit 4: The Planning Process
Using realistic scenarios, participants will learn the basic phases of the planning process and develop strategies to identify technology needs and priorities, create goal statements, write evaluation questions related to goal statements, and identify data sources and tools for analysis.

Level Two: Application Challenges
These activities focus on a single topic and are designed to allow participants the opportunity to more thoroughly explore an area that is relevant to them. Application Challenges are designed to be carried out in an online format with electronic discussions and collaborations.
Participants can choose and enroll in one or more sessions by accessing this Web site: http://sedl.alcaweb.org
The purpose of this portfolio of materials is to provide a complete instructional guide so that an experienced facilitator can successfully deliver the Promoting Technology Leadership activities of the four Foundations units. These materials are designed for a facilitator who comes to the professional development portfolio with no prior knowledge of its implementation. However, it is assumed that the facilitator has some expertise in providing professional development, using technology, and understanding the broader role of administrators and their relationship to technology in school settings.

Portfolio Sections

To the Facilitator
Included in this section is a rationale for the instructional design of the complete portfolio, suggested facilities, room arrangements, strategies for attracting participants, and a suggested 2-day agenda.

Unit Guides 1–4
Each unit guide includes the following components:

Unit Organizer: This section provides specific information such as the time, facilities needed, participant prerequisites, a general activity description, grouping strategy, equipment and material requirements, and other details necessary for facilitator preparation.

Activity Sequence: The Activity Sequence includes a step-by-step guide for implementing the unit and scripted segments in italics that suggest possible dialogue for the facilitator. Facilitators can adapt this dialogue for their own use. While some units refer to specific software and materials, facilitators may need to adapt the activity to fit what is available at the site. The facilitator should examine the activity sequence, handouts, and software together to get a clear understanding of the unit’s instructional intent.

Symbols: These symbols are used throughout the Activity Sequence and are visual cues to remind the facilitator of the estimated time needed and when to perform various tasks.

Handouts, Notes, and Facilitator Materials: This section provides templates of the handouts used in the units.

Application Challenges: These activities are designed to be carried out in an online format with electronic discussions and collaborations. This section includes activity descriptions and links to online enrollment.
To the Facilitator

Instructional Rationale

The four Foundations units utilize a scaffold instructional design approach with the intent to build knowledge from one activity to the next in preparation for the more in-depth activities in the Application Challenges. Application Challenges require more self-direction and collaboration in a facilitated online environment.

What we know and what the research says about adult learners were carefully considered throughout the design of activities in Promoting Technology Leadership.

Adult learners:
- Are task oriented
- See learning as a means to an end
- Want to know what is expected
- Need to integrate what they learn with what they already know
- Like to be valued
- Learn best what they perceive as “worth” learning
- Want to know why what they are learning is important

What we know and what the research says about learning also influenced the instructional design of the Promoting Technology Leadership portfolio. The designers were mindful that:

- Learners bring unique prior knowledge, experience, and beliefs to a learning situation
- Knowledge is constructed uniquely and individually, in multiple ways, through a variety of authentic tools, resources, experiences, and contexts
- Learning is both an active and reflective process
- Learning is a developmental process of accommodation, assimilation, or rejection to construct new conceptual structures, meaningful representations, or new mental models
- Social interaction introduces multiple perspectives through reflection, collaboration, negotiation, and shared meaning
- Learning is internally controlled and mediated by the learner

All of the activities are aligned with the International Society of Technology in Education (ISTE) administrator standards of leadership and vision; learning and teaching; productivity and professional practice; support, management, and operations; assessment and evaluation; and social, legal, and ethical issues.
In Foundations, participants will explore the areas of instructional practice, professional practice and development, technology choices, planning, assessment, and evaluation. Throughout the Foundations course, participants will have the opportunity to explore several technology applications. However, learning a specific technology application is not the purpose of these sessions. Instead, the goal of the 2-day course is the development of an understanding and a vision for technology. Participants will also be introduced to current technology innovations and research in the field.

Facilities for Foundations

**General:** Several computers with Internet access (but not necessarily a computer lab), a digital projection device attached to a computer with a DVD drive, and a meeting space where participants can easily interact with each other are the basic facilities needed for the four Foundations units.

**Room arrangement/configuration:** Most of the activities in Foundations require interaction of the participants, and our experience shows that the Foundations sessions are more successful when participants sit in an arrangement where they are facing each other for group discussions. For example, tables should be arranged in a U or O. An alternative is a large table around which participants can sit. Computer access can be in the same room or from laptops that can be moved as needed.

Attracting Participants to the Foundations Sessions

In preparation for delivering the Foundations sessions, you will need to consider ways to attract administrators who will take time from their busy schedule and attend this 2-day session.

**Incentives:** Fulfilling required staff development hours is an effective incentive. Offering a stipend or job-appropriate “gift” may be another method for attracting participants.

**Promoting the session to attract participants:** In the Handouts section is sample text that you can use to promote the session through e-mail or mail outs or mini posters. It is important that participants understand the purpose of the session is to help them develop their leadership capacity and it is not about technology training for a specific software application.

**Timing:** Remember that administrators are busy with a variety of other work-related and professional development initiatives. Scheduling space is another consideration. Start planning early and work with your school or district calendar to find the best time. After testing periods and during summer break are two suggested times.

Foundations Agenda

A suggested 2-day agenda is included in the Handouts, Facilitator Notes, and Materials section of this document.
Objective

The objective of this unit is to help participants experience technology integration in the classroom. This will help them with the development of a personal vision for technology integration.

ISTE Administrator Standard

I. Leadership and Vision:
Educational leaders inspire a shared vision for comprehensive integration of technology.

Time Needed

3 hours

Facilities

For a smaller group (7–12 people), a room where participants can sit face-to-face for the opening discussion is preferred. For a larger group (13–20 people), a room with several tables (such as a school library) where participants can talk with each other and collaborate on projects is appropriate. Access to two to four computers for setup of activity stations is needed.

Participant Prerequisites

Technology
Participants need to have basic computer navigation skills such as using a mouse, buttons, scrollbars, finding files; and familiarity with Internet searches.

Leadership
Participants need to have some understanding and experience with school improvement, instruction, school policy, and planning.

General Activity Description

Discussion
As a group, participants create an initial list of the elements and the purposes of technology integration.

Active Learning Environments
In small collaborative teams, participants take part in an abbreviated version of SEDL’s Active Learning Environments (ALE). In this theme-based activity, participants use a variety of technologies to examine various aspects of their community. Through this experience, participants gain a better understanding of classroom integration of technology. After the activity, they discuss various types of related classroom activities.

Reflection discussion
Participants reflect on their experience in the previous activity and revise their list of technology integration elements.
Video
Participants watch and then discuss a SEDL video episode of a classroom using technology. They add more elements to the technology integration list.

Summary discussion
Participants review their list of technology integration elements and describe their administrative roles for making technology integration happen.

Grouping Strategy
For the Active Learning Environments rotations, divide the whole group into smaller groups of three to four each with a minimum of three groups. If the smaller groups become larger than four in each, divide those groups into smaller groups with two members in each.

Equipment, Materials, and Handouts
- Active Learning Environment station materials
- Digital cameras, computers with Internet access, electronic spreadsheet software, print materials about the local community, and brainstorming handouts
- Chart stand, paper, and markers
- SEDL video and a computer with a DVD player connected to a digital projector
- Participant handouts (see Unit 1 Handouts section)

Facilitator Preparation
- Read the complete Activity Sequence in the facilitator guide.
- Read the facilitator guide for Active Learning Environments and prepare the materials for the three workstations. The facilitator guide and those materials can be found on the enclosed CD-ROM.
- Verify that the digital cameras are charged and operating. Practice their basic functions.
- Verify that there is computer access to the Internet for the “Census” station. Briefly review the site to see that the steps in the “Census” station materials match the census.gov Web site.
- Prepare the handouts for the introductory community brainstorming activity.
- Acquire some print materials about the local community from the local chamber of commerce or visitor center. Or, print a few pages from the Internet about the local community.
- Prepare other handouts noted in the Activity Sequence (see Unit 1 Handouts section).
- Select a video to show after the ALE activity from the enclosed DVD. Consider your audience when making your selection. Suggested titles:
  “Authentic Algebra” for high school administrators
  “The Desert” for elementary school administrators
  “Reading Buddies” for elementary school administrators
  “Spanish Travelers” for middle school or mixed group of administrators
- Review the reflection questions that summarize the session. Add your own.
- Write the relevant ISTE administrator standards on chart paper and post on a wall in the room.
1. Introduction

Whole group discussion

- The facilitator asks participants to share their expectations of the session.
- The facilitator provides an overview of the session, which will include activities that fulfill part of the requirements of the ISTE administrator standards that have been posted on chart paper for all to read.
  - Leadership and Vision
  - Learning and Teaching
  - Productivity and Professional Practice
  - Assessment and Evaluation
  - Social, Legal, and Ethical issues
- The facilitator explains that this 2-day session will focus primarily on Standard I: Leadership and Vision of the ISTE administrator standards but will touch on the other standards as well.
- The facilitator explains that this session will include using technology during the different activities but will not be a technology training session.

2. Define “Technology Integration”

Whole group discussion

Facilitator asks the participants to answer the following questions:

*What is technology integration in the classroom? What does it look like? What is its purpose?*

The facilitator records the responses on chart paper and tells the participants that they will be adding to the list as the day progresses.

Some possible participant suggestions include:

- Incorporating technology into content areas for mastery, presentations, communication
- Improves curriculum
- Offers different ways to learn and express
- Develops technology skills
- Offers awareness of technology opportunities
3. Active Learning Environments

Hands-on activity
Participants are introduced to a theme-based activity called “Community.” They will rotate through three technology activity stations to gather information about a defined community. There is a discussion period after each group has rotated through all three stations. This activity will help participants gain a first-hand understanding of classroom integration of technology.

Allow approximately 20 minutes at each activity station and 20 minutes for the end of activity discussion.

End of activity discussion
After the three rotations, the facilitator asks the group to comment on the strengths and weaknesses of each station and ideas for how the activity could be carried out in the classroom. The facilitator asks how often participants see this kind of activity in classrooms in their schools and shares handouts that suggest ideas for classroom projects and classroom management strategies.

4. Activity Reflection

Whole group discussion
The facilitator asks participants to reflect on the Active Learning Environments activity and, based on their experience, add to the list for technology integration that they started prior to the activity. Encourage participants to frame their ideas in terms of the teacher, students, curriculum content, and technology.

Some suggestions might include:
• Students are engaged in hands-on technology-supported activities
• There are a variety of activities and tools
• Teacher should be a facilitator and moving away from lecture, teacher-led activities
• Should focus on problem-solving/project-based/research types of activities
• Class organization should include whole class, individuals, and groups
• Use of technology simulations
• Students are empowered in their own learning
• Technology supports content
• Relevant activities with authentic and appropriate assessment included
• Technology tools are accessible and working

5. Video
Participants watch a video of a classroom that incorporates technology. The facilitator will have chosen in advance a SEDL video that matches the audience grade or school level.
6. Discuss Video

Whole group discussion

Facilitator displays the technology integration elements list that was created at the beginning of the unit. Facilitator asks participants to comment on memorable aspects of the video and how they relate to their list.

Facilitator points out the key indicators on the ISTE standards for teachers and students and how the group’s compiled list corresponds to the standards.

7. Summary: The Administrator’s Role

Whole group discussion

The facilitator poses the following question to the group:

What should the administrator provide to help a school implement technology in the classroom?

Responses might include the following:

- The vision
- Teachers’ time for planning
- Materials
- Sharing of opportunities
- Clear expectations
- Access to technology
- Support
- Modeling
- Criteria for evaluating the teacher using technology in the classroom
- Staff development
- Collaboration with other teachers
- Emphasize use of technology that focuses on students’ academic needs
- Find grants and funding opportunities
- Promote community involvement

The facilitator then refers the participants to the ISTE standards for administrators so the group can compare how its list compare with the standards.

The facilitator closes by asking for questions and/or comments.
Objective

The objective of this session is to help participants develop a better understanding of the different types of technology applications and the different ways that these technology applications can be used to support various academic content.

ISTE Administrator Standard

II. Learning and Teaching:

Educational leaders ensure that curricular design, instructional strategies, and learning environments integrate appropriate technologies to maximize learning and teaching. Educational leaders identify, use, evaluate, and promote appropriate technologies to enhance and support instruction and standards-based curriculum leading to high levels of student achievement.

Time Needed

3 hours

Facilities

Participants will need computer workstations with access to the Internet. They may work in pairs or individually on the computer activity. A space that will accommodate a whole group discussion of the activity is also required.

Participant Prerequisites

Technology
Participants need to have basic computer navigation skills such as using a mouse, buttons, scrollbars, finding files; and familiarity with Internet searches.

Leadership
Participants need to have some understanding and experience with school improvement, instruction, school policy, and planning.

General Activity Description

Whole group discussion
Participants share their questions about technology use in instructional settings.

Hands-on activity
Participants compare two different types of technology applications through a problem-solving activity and then discuss the features and educational uses of these types of applications.

Video
Participants observe, analyze, and discuss a second video of a technology integrated classroom.
**Reading**  
Participants read from various research studies and report back to the whole group what they have learned from the readings.

**Reflection**  
Participants continue to define the administrator’s role for choosing appropriate technology for instructional uses.

**Equipment, Materials, and Handouts**
- One of three USA Puzzle software applications
- Earth and Moon Viewer (an online geography application)
- Unit 2 Handouts
- SEDL video
- A computer with a DVD player connected to a digital projector

**Facilitator Preparation**
- Read the complete Activity Sequence in this facilitator guide.
- Select one of the USA Puzzle applications. See Unit 2 Handouts, Facilitator Notes, and Materials for its source.
- Verify that the Internet and the Web sites for the online USA Puzzle and Earth and Moon Viewer are active.
- Practice with the USA Puzzle and Earth and Moon Viewer applications.
- Make duplicates of the Geography Challenge handouts. See Unit 2 Handouts section.
- Select a video from the enclosed DVD. Choose one that is different from the Unit 1 activity. Consider your audience when making your selection. Suggested titles:
  - “Authentic Algebra” for high school administrators
  - “The Desert” for elementary school administrators
  - “Reading Buddies” for elementary school administrators
  - “Spanish Travelers” for middle school or mixed group of administrators
- Select one or two research readings from the suggested list below or from Unit 2 Handout, Facilitator Notes, and Materials section. Make duplicates.

Technology in the Classroom, RBS Currents, Volume 7.1 (Fall/Winter, 2003).  
Research for Better Schools.  
http://www.ettc.net/press/currents_0701.pdf

An Educator’s Guide to Evaluating Claims About Educational Software.  
Technology in Education: SRI International.  
http://www.ncrel.org/tech/claims


These are questions you should ask in evaluating research claims about the effectiveness of educational software.

Please contact the various organizations associated with the sites above and carefully follow their copyright guidelines when making duplicates of the research readings.
1. Introduction

Whole group discussion

The facilitator describes the objectives and activities in this session. The facilitator asks the participants to share their questions about technology use in instructional settings and records their questions on chart paper for all to see.

Possible questions include:

- How do I know that teachers are using technology appropriately?
- What is the “right” technology to use for the different content areas?
- How can technology improve students’ learning? Is there any research?
- What are the different technology applications and their use?
- What is my role as administrator in the instructional process regarding the use of technology?

The facilitator explains that the activities in this session will address many of those questions.

2. Comparing Different Types of Instructional Software

A. USA Puzzle: A Computer-Based Game

Hands-on activity

Direct participants to the USA Puzzle that you have chosen from either online or from a desktop application.

Allow participants about 10 to 15 minutes to work their way through the game. They may work in pairs or individually. The facilitator does not provide assistance unless they ask for it.

Whole group discussion

Once one or two people have won the game, the facilitator stops and discusses the software application.

The facilitator poses these questions:

- What did you think about this game?
- What did you learn from this game?
- What do you think about the way it was designed?
- Did you have much control? How much?
- What kind of learning does it promote? (Emphasize this question with the participants.)
- What else could you do with this application?
B. Earth and Moon Viewer: A Navigation Tool

Hands-on activity

The facilitator tells participants that they will now try a different software.

Before the participants begin this activity, the facilitator reviews the terminology listed in the handout, verifies their understanding, and explains the activity. Participants will carry out the challenge on a computer and can work individually or in pairs at their own pace.

Optional strategy: The facilitator may choose to lead the participants from one location to the next in the geography challenge activity, thus modeling a facilitator-led activity rather than a self-paced activity.

Allow participants about 15 minutes to work on the activity. Once they have completed the various tasks, bring the group together to discuss the features of this software application and their learning experience.

Whole group discussion

The facilitator asks the following questions after the hands-on activity:

- What did you think about this game?
- What did you learn from this game?
- What do you think about the way it was designed?
- Did you have much control? How much?
- What kind of learning does it promote? (Emphasize this question with the participants.)
- What else could you do with this application?
- How does it differ from the previous application?

3. Technology as a Tool: Type I & II Applications

Allow everyone to read the handout. Encourage participants to make notes on the handout during the following discussion.

Whole group discussion

The facilitator asks the following questions after the reading:

- How would you categorize the USA Puzzle? Type I or Type II? Why?
- How would you categorize the Geography Challenge software? Type I or Type II? Why?
- What is your personal experience with Type I software? Type II? Do you have any others to share?
- What type do you see mostly used in your classroom?
- What kind of learning does Type I promote? When would you use Type I?
- What kind of learning does Type II promote? When would you use Type II?
- What are the strengths of Type I? Type II?
- What are the weaknesses of Type I? Type II?
4. Watch and Discuss Video

The facilitator shows a video chosen from the SEDL video DVD that is appropriate to the participant audience.

Whole group discussion

The facilitator asks the following questions:

- What types of technology did you see used? Type I or Type II?
- Was technology in the video used in a meaningful way? Describe.
- Would the activity have been as engaging for students without the technology?
- How could the teacher improve this lesson?
- Are there other ways technology could be integrated in this lesson in a meaningful way?

5. Research Reading and Discussion

The facilitator explains that the participants now need to review what the research says about educational software. They may choose and read from the handouts provided, but they may also supplement the reading by accessing Internet links referenced in the handouts.

They may work in groups, pairs, or individually. However, they are expected to report back to the whole group at the end of the reading period (20 minutes) and share their findings. They may make notes about their reading with a word-processor. The facilitator needs to adjust the reading time depending on the number of participants and the expected time necessary for the groups to report back.

Suggested reading handouts:

- These are questions you should ask in evaluating research claims about the effectiveness of educational software.
- Practices Evident in Good Models of Teaching with Technology (GMOTT) http://knowledgeloom.org/practices3.jsp?location=1&bpinterid=1163&spotlightid=1163

Whole group discussion of readings

Each small group reports to the whole group a summary of their findings.

The facilitator needs to adjust the time needed depending on the number of participants and the expected time needed for the groups to report back.
6. Reflection

Whole group discussion

The facilitator asks participants to share their perception of the role of research and findings and how it helps inform them in their administrative role.

7. Summary of Activities: Units 1 and 2

The facilitator returns to the list of technology integration elements that was begun during Unit 1. The facilitator asks participants what they would like to add to the list.

The facilitator asks participants to review the principles listed on the handout and then asks them to compare the two lists and identify what is missing from either list.

The facilitator closes by asking if the day’s activities have helped the participants develop a clearer picture of technology integration. The facilitator asks what was most helpful, what needs to be changed for the following day, and if there are questions and comments.
Objectives
Participants will learn different ways that technology can be used for non-instructional purposes and features and benefits of various technology innovations.

ISTE Administrator Standard
III. Productivity And Professional Practice:
Educational leaders apply technology to enhance their professional practice and to increase their own productivity and that of others.

Time Needed
2 hours

Facilities
This activity requires a room with access to four to six computers, digital projection equipment, and a table and chair arrangement that will facilitate a group discussion.

Participant Prerequisites
Technology
Participants need to have basic computer navigation skills such as using a mouse, buttons, scrollbars, finding files; and familiarity with Internet searches.

Leadership
Participants need to have some understanding and experience with school improvement, instruction, school policy, and planning.

General Activity Description

Video observation
Participants watch and then discuss the principal video, Leading with Technology, that shows two different principals’ approaches to the use of educational technology.

Read and share
Participants read and share readings from journal articles that describe other technology literate administrators.

Whole group discussion
Participants are asked to reflect on their administrative challenges regarding technology and how they compare to the video and the readings.

Hands-on activity
Using a Personal Digital Assistant (PDA), participants try a new software application that can enhance their productivity for classroom and school walkthroughs.

Reflection
Participants review the ISTE standards for teachers, students, and administrators.
Equipment, Materials, and Handouts

- Principal video, *Leading with Technology*, located on the DVD enclosed with this portfolio
- A computer with a DVD player connected to a digital projector
- Unit 3 Handouts
- PDAs preloaded with classroom walkthrough software
- A projection device for the handheld such as a MARGI that connects directly from the handheld to the digital projector for the purpose of demonstrating the PDA software
- Chart stand, paper, and markers

Facilitator Preparation

- Read the Activity Sequence in this facilitator guide.
- Review the *Leading with Technology* video.
- Test the video projection equipment.
- Duplicate Handout 3-1, *Leading with Technology*: Video Notes.
- Read, select, and duplicate a reading about technology literate superintendents from the list below or from Unit 3 Handouts and Facilitator Notes and Materials section.
  1. Administrator profiles and narratives from the ISTE for Administrators brochure or from the ISTE website. http://cnets.iste.org/administrators/a_profiles.html

Follow the copyright and permission guidelines for duplicating materials that are required by each of these organizations.

- Duplicate Handout 3-2, Technology Literate Administrators: Reading Review Form for note-taking about the reading.
- Read, select, and duplicate a reading about the use of PDAs from the following list or from Unit 3 Handouts and Facilitator Notes and Materials section.
  1. This site provides resources for effective use of the handheld computer in support of teaching and learning. http://kathyschrock.net/power/
  2. This is a collection of articles about PDAs. http://www.remc11.k12.mi.us/bcisd/classres/mobile.htm
  3. This site is about PDA uses for administrative tasks. http://www.districtadministration.com/page.cfm?p=328

Follow the copyright and permission guidelines for duplicating materials that are required by each of these organizations.

- Select, load, and test the PDAs with walkthrough software. Sources for the software: *Tec Observe* software for the PALM: http://www.portadata.com/products.htm *Handbase* software from this Web site: http://ddhsoftware.com/forms.html?
- Charge the PDA batteries.
Activity Sequence

1. Watch Video
   Participants watch Leading with Technology and use the handout to make notes about the ways the principals in the video approach technology use and support in their school.

   Whole group discussion
   Refer to the handout as a guide for the discussion.

2. Read and Share
   Participants read about other technology-literate administrators and make notes in the Reading Review Form. The facilitator needs to decide how much time to allow for the readings and sharing based on the number of participants in the group.

   Whole group discussion
   Participants are asked to reflect on their administrative challenges regarding technology and how they compare to the video and the readings.

   The facilitator asks participants how they personally use technology for professional and administrative tasks and how their campus or district uses technology for administrative tasks. The facilitator probes further to see if they are familiar with and use technology for these tasks:
   - General productivity such as Word, Excel, PowerPoint
   - Databases — either proprietary or commercial
   - Communication tools such as e-mail, lists, bulletin boards, etc.
   - Data collection and analysis for improving classroom instruction
   - Inventories, scheduling, calendars
   - Tracking discipline referrals
   - New technology tools for productivity and administrative purposes such as hand held computers or PDAs (personal digital assistants), pen drives, wireless networks, portable computer labs called COWS (computers on wheels)
4. Hands-on Activity

The facilitator tells participants that they are going to explore the opportunities of a PDA, or a handheld computer. The application they will look at is Tec Observe (or an alternative selection) used for classroom and school walkthroughs. Handouts for various ways a PDA or handheld computer can be used are provided to the participants. If time is available, a video clip can be used to practice with the observation tool.

5. Reflection

The facilitator asks participants for comments and suggestions regarding their readings and the use of the PDAs for administrative uses.

The facilitator also asks participants how they think their productivity will increase or improve through the use of these technology tools.
Objective
Participants will develop an understanding of how the planning process is used for technology planning in school settings. The planning process steps covered in this session include:

- Using technology tools to identify needs and priorities
- Creating goal statements and objectives based on needs and priorities
- Writing evaluation questions related to goal statements
- Identifying data sources, collection, and analysis methods

ISTE Administrator Standard
I. Leadership and Vision:
Educational leaders inspire a shared vision for comprehensive integration of technology.

V. Assessment and Evaluation:
Educational leaders use technology to plan and implement comprehensive systems of effective assessment and evaluation.

Time Needed
3 hours

Facilities
- A room with a computer and projector connected to the Internet for the instructional demonstration by the facilitator is needed during the first part of this session.
- One or more tables are needed for small group meetings where participants can plan their proposals.
- The room needs to be arranged so as to allow whole group participation during the presentations.

Participant Prerequisites
Participants need some understanding of the decision-making and policy-making process within their school and school district.

General Activity Description
Introduction
The facilitator reviews the previous activities to show where they fit into the bigger picture of technology planning and campus improvement. The facilitator describes the phases of the planning process that will be covered in this unit.

Guided practice activity
The facilitator leads participants through a practice activity to help them experience the process for identifying needs, creating goal statements, writing evaluation questions, collecting data, and evaluating results.
**Small group scenario work**
Participants work in small groups on an assigned scenario to complete the process of identifying needs, creating goal statements, writing evaluation questions, collecting data, and evaluating results.

**Presentations**
Each small group presents their proposal to the whole group as the facilitator assumes the role of the “reviewer” to give oral feedback for each presentation.

**Equipment, Materials, and Handouts**
- A computer and digital projector with Internet access and PowerPoint software is required.
- A PowerPoint presentation, The Planning Process, is located on the CD-ROM included in this portfolio.
- Unit 4 Handouts

**Facilitator Preparation**
- Read the Activity Sequence in this facilitator guide.
- Review the facilitator-led activity, the associated handouts, and PowerPoint presentation (See Unit 4 Handout, Facilitator Notes, and Materials section).
- Verify that the Internet and Web sites are accessible.
- Verify that the projection device and PowerPoint presentation are functioning properly.
- Duplicate Unit 4 handouts (See Unit 4 Handouts section).
- Arrange the room to accommodate the presentation and working space for the participants.
- Review and modify (if desired) the End of Session Evaluation Rubric.
1. Introduction

Whole group discussion

The facilitator reviews the previous activities that focused on two major areas:

1. Technology integration activities and choosing appropriate educational technologies, and
2. Technology for administrative uses.

The facilitator points out that the challenge for leaders is to see where technology fits into the bigger picture of the campus improvement plan.

The facilitator poses these reflective questions to the whole group:

- What vision are you beginning to develop for technology use in your campus or district?
- How does technology as a tool help you make important decisions regarding teaching and learning?
- What areas still pose a problem or concern for you?

Participants are encouraged to share with the whole group. Responses may be vague.

2. The Planning Process: Introduction

Guided Practice Activity with a PowerPoint presentation

The facilitator directs participants to Handout 4-1. The facilitator explains that during the activity s/he will lead them through the materials in the handout with brief explanations to help them understand the phases of the planning process.

Starting with the “Create a Vision” slide of the PowerPoint presentation (slides are duplicated in the graphic of the first handout), the facilitator briefly explains the parts of the planning process that will be covered in this activity. The facilitator explains that there will be more in-depth discovery of the various steps later in the activity.

The facilitator explains that this activity will begin with the “Assess the Need” phase since the previous activities have focused on the “Create a Vision” phase.
The facilitator poses the following scenario to the whole group:

*Have you ever faced the following situation? Have you had a problem or concern that required consulting with another person to help you solve that problem? Has the person you consulted with attempted to solve your problem before you really finished explaining the problem? Or have they failed to ask more questions and as a result didn’t understand your problem? As a result, they gave you suggestions and advice that didn’t apply to your problem?*

The facilitator asks for volunteers to share their experiences.

The facilitator then relates this situation to the way that technology is often selected and purchased. That is, there is no clear understanding that the particular technology solution will actually fulfill the need and produce the desired outcomes.

The facilitator asks participants to share their experiences where the technology solution did not fit the educational need and time and money were possibly wasted.

The facilitator explains that this activity will help participants learn how to apply a process to help them ask the right questions to define a situation to find the right solutions.

The facilitator directs participants to Handout 4-2 and explains that they are going to briefly go through the steps in the process with this practice activity, starting with the **Situation Description**.

The facilitator explains that for assistance in starting this activity, there are some short answers provided in the first two steps of the process. The facilitator may use Handout 4-2a as a guide for suggested answers or allow participants to also use Handout 4-2a.

The facilitator reads the **Situation Description** aloud and asks participants to read along silently.

*Your eighth-grade students are scoring very low on their survey results in the area of communication with the use of e-mail and other electronic tools. Results indicate that they do not use or cannot use those tools for collaborative projects and to conduct research. You need to define the perceived need or issue and describe some tools you could use to analyze the situation.*

**Step 1. What is the perceived problem or need?**

The facilitator explains that:

*Often a problem, issue, or need may be obvious. In the case of students using e-mail, their responses could indicate a problem in several areas — such as lack of access to e-mail (for various reasons), lack of a school policy that allows for student e-mail accounts, lack of student and teacher skills for accessing the system, or lack of technology training. Or, parents won’t let students use e-mail. Or, there is no e-mail access at home.*
The facilitator points out:

The point of this step is to be a good detective. That is, look and listen carefully to issues and concerns. Sometimes a mismatch of a solution to a problem results from the lack of careful assessment of the situation. Sometimes the problem may seem obvious, but upon further investigation, another problem is revealed. You might think that the problem is a training issue when it really is a management or support issue.

Asking good questions and becoming a good listener are important skills for identifying a problem, priority, or need.

**Step 2. How could you determine and assess a need, problem, or issue?**

The facilitator continues:

The purpose of a needs assessment is to identify the gap between your technology vision and the present situation in your school. Closing this gap where there are problems or needs will become the focus of your leadership actions.

Don’t assume that you have to start from scratch when you are looking for information. Find out what information already exists. If you have a planning committee, it may be able to identify existing information and analyze it with technology in mind. This might include taking stock of your present technology inventory, student achievement, special population needs, school report card, as well as teachers’ needs. If your school or district has already conducted a needs assessments as part of an ongoing program evaluation plan, the results could yield useful information for your technology needs assessment.

Other data to inform your needs assessment may come from your school’s improvement plan, Title I profile, or other reports that document the school community and its achievement.

The facilitator directs participants to Handouts 4-3 and 4-4 that provide more details about conducting a needs assessment. The facilitator explains that participants can use these pages later for reference and guidance during their small group discussions.

**Step 3. What technology tools could help you assess the need?**

The facilitator continues:

Today we will sample some of the free tools that are available on the Internet that could be useful for conducting needs assessments.

The facilitator directs participants to Handout 4-5 that includes various online tools. Using the World Wide Web, the facilitator demonstrates one or two of the Web sites from the handout.

The facilitator directs participants back to Step 3 of Handout 4-2 where they can make notes regarding online tools for the needs assessment.
Step 4. **What are possible solutions to this need or problem?**

The facilitator continues:

_In this phase of the work, your ideas will depend on the results of the needs assessment. The results may point to more than one possible solution._

The facilitator directs participants to make notes in Step 4 of the Practice Activity Worksheet.

Step 5. **How do you create outcome statements or objectives?**

The facilitator directs participants to Handouts 4-6 and 4-7.

The facilitator asks participants to review the material in the handouts. From that reading, the facilitator asks the whole group to clarify their understanding by

- Defining an outcome
- Defining an outcome statement
- Describing the essential components of an outcome statement

The facilitator asks participants to practice writing outcome statements with the Practice Activity Worksheet.

Step 6. **How will you evaluate your outcomes and know that you have achieved your goal?**

The facilitator poses these questions:

- _How will you know if you have accomplished or reached your goals?_
- _What questions do you need answered?_

The facilitator reviews the guidelines for writing good questions in Handout 4-8 and provides examples for the Practice Activity Worksheet.

The facilitator also refers to Handout 4-9 and explains how that information can be incorporated into the process of writing outcome statements.

Step 7. **What are some data sources and collection methods?**

The facilitator reviews the guidelines in Handouts 4-10, 4-11, and 4-12 for data sources and collection methods to provide examples for the Practice Activity Worksheet.
Step 8. **How will you analyze and report your data?**

The facilitator asks participants how data is currently analyzed and reported in their school districts. If participants do not know, the facilitator suggests that they ask if their district has an assessment department or hires an external consultant to do this type of work.

---

Step 9. **What other steps are part of the planning process?**

The facilitator explains that there are additional steps in the planning process that are not covered in these handouts or this activity.

**a. Creating action plans and timelines:** The facilitator points out this phase of the process and its importance. This part of the process is where the actual work takes place and must be consistently realigned to the broader outcomes and goals. Participants do not need to create timelines and objectives for the Practice Activity Worksheet.

**b. Reflect and revise:** The facilitator explains that this is not the end of the total process but actually a beginning. New issues and needs may have appeared throughout the course of the process and must be addressed in further work.

The facilitator reviews the completed Practice Activity Worksheet to see if there are further questions before assigning the practice scenarios for the independent work.

---

3. **Small Group Activity**

**Activity description and assignments**

After the facilitator has completed the introduction to the planning process, the facilitator passes out the handouts and carefully reads the scenario with the participants and answers questions for clarification.

The participants then break into smaller groups. The participants may wish to group by school-age level, content area, job type, or same school.

In the scenario, participants are asked to analyze the problem from the perspective of different stakeholder groups — student, teacher, and administrator. If a team is assigned to investigate the student aspect of the problem, **they do not assume the role of a student** but rather approach the scenario by looking at student data, needs, issues, and suggesting aspects of the problem that affect the students. The same approach applies to teacher and administrator stakeholder groups.

The facilitator assures the teams that there are no right or wrong solutions and they probably will find that there is overlap among the recommendations for the stakeholder groups.

**Group planning**

Allow groups about 45 minutes to 1 hour to work on the scenario. They may use a computer if they wish. The facilitator needs to allocate the planning time in relationship to how many groups will be presenting.
Presentations and feedback

Allow about 10–15 minutes total for each group to present its proposal. This amount of time will include presentation, questions from other participants, and feedback from the facilitator. This does not need to be a formal presentation with handouts or slides. It may be a verbal presentation based on notes that the team developed using the Handout 4-2 Practice Activity Worksheet as a guide.

Facilitator feedback

The facilitator assumes the role of a proposal reviewer and asks questions about the proposals that are presented. After all of the presentations and questions from all participants, the facilitator should “grant” the money to all of the teams with the suggestion that they combine their different parts into a whole proposal as would be the case in a “real world” situation.

Summary and closing

The small group activity scenario serves as the assessment for 2-day Promoting Technology Leadership Foundations course.

4. Summary Activity

Whole group discussion

The facilitator leads a discussion regarding the importance of leadership for national educational technology initiatives and how the Foundations training has helped provide a bigger picture of the role of technology in educational settings.

5. Foundations Closing

Participants complete and return End of Session Evaluation Rubric to provide feedback from the session for future planning and improvement.

6. Next Steps

Participants are encouraged to go to the Promoting Technology Leadership Web site http://sedl.alcaweb.org to enroll in one or more of the Applications Challenges.
Handouts, Facilitator Notes, and Materials
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These materials are also available electronically on the enclosed CD-ROM

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# Suggested Two-Day Agenda

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#### Morning

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<th>Activity</th>
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<tbody>
<tr>
<td>8:30–9am</td>
<td>Coffee and conversation</td>
</tr>
<tr>
<td>9:00–9:30</td>
<td>Introductions and Expectations (Yours and Ours)</td>
</tr>
</tbody>
</table>

**3 hours total**  
**Instructional Uses of Technology**  
These activities will help you gain a better understanding of technology integration in a classroom.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30–9:45</td>
<td>(1) Introduction</td>
</tr>
<tr>
<td></td>
<td>Define and describe “integration of technology in the classroom.”</td>
</tr>
<tr>
<td>9:45–11:00</td>
<td>(2) Active Learning Environments</td>
</tr>
<tr>
<td></td>
<td>This hands-on integrated activity gives you a chance to use several computer technologies.</td>
</tr>
<tr>
<td>11–11:30</td>
<td>(3) Video</td>
</tr>
<tr>
<td></td>
<td>Observe a classroom activity of technology integration.</td>
</tr>
<tr>
<td>11:30–noon</td>
<td>(4) Whole group discussion of the video</td>
</tr>
<tr>
<td></td>
<td>What are the key elements that an administrator should look for in a classroom that is using technology? What is the administrator’s role?</td>
</tr>
<tr>
<td>Noon–1pm</td>
<td>Lunch break</td>
</tr>
</tbody>
</table>

### Day One  
#### Afternoon

**3 hours total**  
**Evaluating Educational Software for the Classroom**  
These hands-on activities will help you understand the different types of software applications and their appropriate uses in the classroom.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–4pm</td>
<td>(1) Whole group discussion</td>
</tr>
<tr>
<td></td>
<td>What are your questions and concerns about technology?</td>
</tr>
<tr>
<td></td>
<td>(2) The Great Race: A Geography Challenge</td>
</tr>
<tr>
<td></td>
<td>Compare and contrast two different types of classroom uses of software applications.</td>
</tr>
<tr>
<td></td>
<td>(3) Video</td>
</tr>
<tr>
<td></td>
<td>Observe a classroom activity of technology integration.</td>
</tr>
<tr>
<td></td>
<td>(4) Research reading and whole group discussion</td>
</tr>
<tr>
<td></td>
<td>(5) Review the technology integration list</td>
</tr>
</tbody>
</table>
### Day Two  Morning

3 hours total  **Leading with Technology**

These activities will broaden your perspective of how other administrators use and support technology.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9am–noon</td>
<td>(1) Introduction</td>
</tr>
<tr>
<td></td>
<td>(2) Video viewing: Leading with Technology</td>
</tr>
<tr>
<td></td>
<td>Watch and then discuss a video that shows two principals’ approaches for educational technology use and support.</td>
</tr>
<tr>
<td></td>
<td>(3) Reading</td>
</tr>
<tr>
<td></td>
<td>Read how other administrators use technology.</td>
</tr>
<tr>
<td></td>
<td>(4) PDA activity</td>
</tr>
</tbody>
</table>

| Noon–1pm      | Lunch break                                                              |

### Day Two  Afternoon

3 hours total  **The Planning Process**

These activities will help you understand the multiple phases of technology planning and your leadership role in the process.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–4pm</td>
<td>(1) Introduction</td>
</tr>
<tr>
<td></td>
<td>(2) Guided practice activity</td>
</tr>
<tr>
<td></td>
<td>(3) Small group work</td>
</tr>
<tr>
<td></td>
<td>(3) Whole group sharing and discussion</td>
</tr>
<tr>
<td></td>
<td>(4) Wrap up</td>
</tr>
<tr>
<td></td>
<td>(5) Closing: Evaluation</td>
</tr>
</tbody>
</table>
Promoting Technology Leadership: Foundations Overview

(This text can be used for announcements via e-mail, mail outs, or posters and is found on the enclosed CD-ROM.)

Purpose
The purpose of Promoting Technology Leadership: Foundations is to help school administrators and/or campus leaders develop a vision for the use of technology in educational settings and to understand their role in facilitating the process for implementing that vision. Participants will explore the areas of instructional practice, professional practice and development, technology infrastructure, planning, and assessment and evaluation.

Format  Face to Face — Two, 6-hour days

Audience  School administrators at various levels

Outcomes  At the end of the 2-day Foundations course, participants will have developed their vision, based on their needs and resources, and will have a framework for implementing that vision. They can then choose Applications Challenges that will develop more in-depth understanding and experience in specific areas of their vision.

Unit 1  Instructional Uses of Technology
Through this hands-on activity, using several technology applications, participants gain a deeper understanding of technology integration in the classroom — what it looks like and what it should accomplish.

Unit 2  Evaluating Educational Software for the Classroom
In this activity, participants share their questions about technology use in instructional settings, compare different types of technology applications, and discuss their appropriate use to support student learning. Participants will observe, analyze, and discuss a video of a technology-integrated classroom activity and discuss the administrator's role in making technology choices.

Unit 3  Leading with Technology
This activity will introduce the different ways that technology can be used for the non-instructional aspects of the school; that is, data collection tools, strategies for campus walkthroughs and classroom observations, scheduling and planning tools, communication wireless networks, COWS (portable labs), and other technology innovations.

Unit 4  The Planning Process
Through scenarios, participants will learn the basic phases of the planning process and develop strategies to identify technology needs and priorities, create goal statements based on needs/priorities, write evaluation questions related to goal statements, and identify data sources and analysis resources.

Throughout the 2-day session participants will be encouraged to share experiences with each other.
Promoting Technology Leadership: Video Series

There are several SEDL videos designed to complement professional development activities to show how technology can be integrated into student-centered, project-based instruction.

The philosophies and instructional principles presented here guide educators seeking to create student-centered learning environments even as technologies continue to evolve. The classroom episodes depict students and educators in the Southwest, primarily in economically and culturally diverse communities, engaged with technology as part of innovative project-based activities. The technologies and instructional strategies employed are highly adaptable to other content areas and grades.

All of the following episodes are available on the enclosed DVD and from SEDL’s online catalog at http://www.sedl.org/pubs/catalog/items/tec50.html or you may order by phone at (800) 476-6861.

**Leading with Technology**

Two school principals share their strategies for implementing and supporting technology use in their respective schools. One school is located in a central city urban environment, the other is in a semi-rural community quickly becoming a suburb to a rapidly growing adjacent larger city. Total running time: 14:20 minutes.

**Authentic Algebra: High School Classroom Episode**

This episode depicts high school students engaged in three group activities designed to apply the algebraic concepts of conics, ellipses, and parabolas to authentic situations. Students from a Web mastering class document the activities of the algebra students for inclusion on the school Web site. Total running time: 15:00 minutes.

**The Desert: Second Grade Classroom Episode**

This classroom video episode depicts an interdisciplinary unit of study about the desert in a second grade classroom. A variety of technologies are used to support student-centered approaches in this classroom. Total running time: 19:05 minutes.

**Reading Buddies: First and Fifth Grade Classroom Episode**

This classroom episode portrays how first grade and fifth grade students learn together as they create an electronic alphabet book for the younger children in their school. Total running time: 19:28 minutes.

**Spanish Travelers: Ninth Grade Classroom Episode**

This classroom episode depicts small groups of students working on a project-based learning activity. Their task is to find pertinent information and create a travel brochure for selected Spanish speaking countries. A variety of technologies are used to support their work, including computers, the Internet, digital cameras, and word-processing and database software. Total running time: 13:45 minutes.
### I. Preparation Level

<table>
<thead>
<tr>
<th>Skills and ideas from the professional development session</th>
<th>I feel prepared to do this:</th>
<th>I need more help with this:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I can recognize when technology is effectively integrated into classroom activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I can recognize where technology can support and enhance learning in specific content areas.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I can make a more informed decision regarding the appropriateness of a computer software application for classroom use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I can make a better distinction between open-ended and highly structured software.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. From the research readings, I am now more informed about the impact of using technology for instructional purposes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I have a broader understanding of the use of technology for productivity in my work.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I understand the planning process to plan and reach my goals.</td>
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<td></td>
</tr>
</tbody>
</table>
II. Activity feedback

Please comment on these specific activities noting if the activity was helpful or useful, if it was challenging enough or too challenging, if you can see implications for your school or district, and any other comments you want to share.

1. Instructional Uses of Technology

2. Evaluating Educational Software for the Classroom

3. Professional and Administrative Uses of Technology

4. The Planning Process
I. Leadership and Vision

Educational leaders inspire a shared vision for comprehensive integration of technology and foster an environment and culture conducive to the realization of that vision.

Educational leaders

A. facilitate the shared development by all stakeholders of a vision for technology use and widely communicate that vision.
B. maintain an inclusive and cohesive process to develop, implement, and monitor a dynamic, long-range, and systemic technology plan to achieve the vision.
C. foster and nurture a culture of responsible risk-taking and advocate policies promoting continuous innovation with technology.
D. use data in making leadership decisions.
E. advocate for research-based effective practices in use of technology.
F. advocate, on the state and national levels, for policies, programs, and funding opportunities that support implementation of the district technology plan.

II. Learning and Teaching

Educational leaders inspire a shared vision for comprehensive integration of technology and foster an environment and culture conducive to the realization of that vision.

Educational leaders

A. identify, use, evaluate, and promote appropriate technologies to enhance and support instruction and standards-based curriculum leading to high levels of student achievement.
B. facilitate and support collaborative technology-enriched learning environments conducive to innovation for improved learning.
C. provide for learner-centered environments that use technology to meet the individual and diverse needs of learners.
D. facilitate the use of technologies to support and enhance instructional methods that develop higher-level thinking, decision-making, and problem-solving skills.
E. provide for and ensure that faculty and staff take advantage of quality professional learning opportunities for improved learning and teaching with technology

III. Productivity and Professional Practice

Educational leaders apply technology to enhance their professional practice and to increase their own productivity and that of others.

Educational leaders

A. model the routine, intentional, and effective use of technology.
B. employ technology for communication and collaboration among colleagues, staff, parents, students, and the larger community.
C. create and participate in learning communities that stimulate, nurture, and support faculty and staff in using technology for improved productivity.
D. engage in sustained, job-related professional learning using technology resources.
E. maintain awareness of emerging technologies and their potential uses in education.
F. use technology to advance organizational improvement.
IV. Support, Management, and Operations

Educational leaders ensure the integration of technology to support productive systems for learning and administration.

Educational leaders
A. develop, implement, and monitor policies and guidelines to ensure compatibility of technologies.
B. implement and use integrated technology-based management and operations systems.
C. allocate financial and human resources to ensure complete and sustained implementation of the technology plan.
D. integrate strategic plans, technology plans, and other improvement plans and policies to align efforts and leverage resources.
E. implement procedures to drive continuous improvements of technology systems and to support technology replacement cycles.

V. Assessment and Evaluation

Educational leaders use technology to plan and implement comprehensive systems of effective assessment and evaluation.

Educational leaders
A. use multiple methods to assess and evaluate appropriate uses of technology resources for learning, communication, and productivity.
B. use technology to collect and analyze data, interpret results, and communicate findings to improve instructional practice and student learning.
C. assess staff knowledge, skills, and performance in using technology and use results to facilitate quality professional development and to inform personnel decisions.
D. use technology to assess, evaluate, and manage administrative and operational systems.

VI. Social, Legal, and Ethical Issues

Educational leaders understand the social, legal, and ethical issues related to technology and model responsible decision-making related to these issues.

Educational leaders
A. ensure equity of access to technology resources that enable and empower all learners and educators.
B. identify, communicate, model, and enforce social, legal, and ethical practices to promote responsible use of technology.
C. promote and enforce privacy, security, and online safety related to the use of technology.
D. promote and enforce environmentally safe and healthy practices in the use of technology.
E. participate in the development of policies that clearly enforce copyright law and assign ownership of intellectual property developed with district resources.
ISTE National Educational Technology Standards for Teachers

All classroom teachers should be prepared to meet the following standards and performance indicators.

I. Technology Operations and Concepts

Teachers demonstrate a sound understanding of technology operations and concepts.

A. demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Educational Technology Standards for Students).

B. demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies.

II. Planning and Designing Learning Environments and Experiences

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

Educational leaders

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.

III. Teaching, Learning, and the Curriculum

Teachers implement curriculum plans that include methods and strategies for applying technology to maximize student learning.

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 students.

C. apply technology to develop students’ higher order skills and creativity.

D. manage student learning activities in a technology-enhanced environment.
IV. Assessment and Evaluation

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

A. apply technology in assessing student learning of subject matter 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.

V. Productivity and Professional Practice

Teachers use technology to enhance their productivity and professional practice.

A. use technology resources to engage in ongoing 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 in order to nurture student learning.

VI. Social, Ethical, Legal, and Human Issues

Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in PK-12 schools and apply that understanding in practice.

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.
ISTE National Educational Technology Standards for Students

Teachers can use these standards as guidelines for planning technology-based activities in which students achieve success in learning, communication, and life skills.

I. Basic Operations and Concepts
   A. Students demonstrate a sound understanding of the nature and operation of technology systems.
   B. Students are proficient in the use of technology.

II. Social, Ethical, and Human Issues
   A. Students understand the ethical, cultural, and societal issues related to technology.
   B. Students practice responsible use of technology systems, information, and software.
   C. Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.

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

IV. Technology Communications Tools
   A. Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
   B. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

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

VI. Technology Problem-Solving and Decision-Making Tools
   A. Students use technology resources for solving problems and making informed decisions.
   B. Students employ technology in the development of strategies for solving problems in the real world.

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# Classroom Grouping Strategies

## Working Individually

**Advantages**
- High demand for individual initiative; difficult to hide deficiencies
- Efficient decision making
- Maximum exposure to tools and resources

**Disadvantages**
- Limited prior knowledge; single perspective
- Lack of knowledge or skill is disabling, embarrassing
- Abundance of tools and resources required

## Working in Pairs

**Advantages**
- Accumulative prior knowledge, multiple perspectives
- Increased opportunity for students to contribute
- Increased socialization, reflection, and negotiation
- Less embarrassment for lack of knowledge or skill
- Economy of tools and resources

**Disadvantages**
- Less demand for individual initiative
- More skilled person may usurp responsibility
- Less skilled person can hide lack of knowledge or skills
- Higher noise level
- Less access to tools for each learner; less opportunity to practice skills
- Less efficient decision making

## Working in Groups of Three or More

**Advantages**
- Accumulative prior knowledge; multiple perspectives
- Increased socialization, reflection, and negotiation
- Less embarrassment for lack of knowledge or skill
- Economy of tools and resources
- Increased efficiency of decision making (tiebreaker)

**Disadvantages**
- Less demand for individual initiative
- Decreased opportunity for students to contribute
- More skilled person may usurp responsibility
- Less skilled persons can hide lack of knowledge or skill
- Higher noise level
- Less access to tools for each learner; less opportunity to practice skills

Source: Active Learning with Technology. (2000) Austin, TX: Southwest Educational Development Laboratory.
Which grouping strategy is best if the goal of the activity is to . . .

---

learn and practice specific computer skills

---

develop a strategy for solving an authentic problem

---

apply newly learned knowledge for solving an authentic problem

---

share ideas and resources to design a project which demonstrates knowledge

---

quickly accomplish a task of a larger project

---

review and remediate learned material before a test

---

Source: Active Learning with Technology. (2000) Austin, TX: Southwest Educational Development Laboratory.
Project Ideas for Using Data Sets

Here are some ideas for using various data sets to analyze and answer questions or solve problems that you have designed. Using technology tools such as word processing to create surveys, online tools or scientific probes to collect the data, an electronic spreadsheet to organize and analyze the data, and an electronic presentation tool to present data results makes these projects even more fun and interesting. Handheld GPS units, handheld computers, and digital pedometers are some of the latest technology tools appropriate for classroom use.

Step 1 Collect the data
Data can be collected from multiple places in multiple ways. You can find and analyze information from other data sets such as the U.S. Census Bureau. You can also collect your own original data by creating your own data collection methods.

Surveys
Constructing a survey for gathering your data is a good writing project. It helps develop skills for developing good questions. A class survey could be about many things: pets, family members, favorites, opinions, habits like TV watching, personal data such as height, personal choices, hobbies, etc. Before creating a survey to collect the data, first determine what it is you want to know. Can it be answered with the data you plan to collect and analyze?

Temperatures/Weather
Use the data provided on the Internet or in newspapers, listing the high and low temperatures for a select group of cities or specific location.

Nutrition Facts
Use the nutrition facts from cereal labels or other popular foods to compare nutritional values of different foods.

Healthy Lifestyle
Monitor and track exercise, weight gain/loss, caloric intake.

Counting and Making Predictions

Step 2 Organize the data
Plan the organization of your data collection chart. Decide upon labels, columns, and rows. Enter your data in a manner which can answer your question.

Step 3 Analyze the data
Make calculations. Use an electronic spreadsheet for an effective method.

Step 4 Present the data
Use a chart which can demonstrate and communicate your data appropriately.
Project Resources

TALON Web Guide for K–12 Teachers
http://www.southcentralrtec.org/talon

TALON is designed as a guide for K–12 teachers interested in using Internet resources and creating Web-based activities for students. The subject area menu allows users to browse annotated links to selected sites, many of which contain lesson ideas. Though TALON is not intended to be an exhaustive directory, these sites represent examples of the high quality and varied educational content available online. TALON is a product of the Southwest Educational Development Laboratory.

Others:

The WebQuest Page
http://www.webquest.sdsu.edu

MarcoPolo
http://www.marcopolo-education.org

Keypals
http://www.teaching.com/iecc/
http://www.epals.com

“Ask an Expert” Services
http://www.askanexpert.com

Electronic Publishing
http://www.kidpub.org/kidpub/
http://www.cyberkids.com

Online Contest
http://www.thinkquest.org

Global SchoolNet Foundation’s Project Registry
http://www.globalschoolnet.org/gsh/

Blue Web’n Application Library
http://www.kn.pacbell.com/wired/bluewebn/

Education Place
Managing Technology in the Classroom

How can I teach my students how to use a new software application?

Strategies

• Introduce the software to the whole class. Demonstrate the basics of the software to the whole class (in a lab or in the classroom with a projector). Show just what they need to know to get started (they will figure out how to do the fancy stuff!)

• Post a step-by-step guide by each computer.

• Train a “tech squad” that can help the other students. Make this a rotating role so that these students have time to do their own work.

• Group students so that there is one person on each team who has some computer experience. This person should be a peer mentor, not a person who does all of the keyboarding.

• Create a computer center where students can go to explore the software before a formal project is due. This allows them to become familiar with the basic features. They can explore more sophisticated features as time allows. Have “cheat sheets” available.

I only have a few computers. How can I manage the class so that everyone has a turn?

Strategies

• Careful planning in advance is a must! But prepare to be flexible.

• Plan activities that are appropriate for your students and for the time available.

• In the beginning, keep technology projects short and simple until you and your students are comfortable with the technology and the change in classroom management strategies.

• Have students work in small groups of two to four. Give them guidance for planning and carrying out their work.

• Be sure students are prepared when they have their turn on the computer. Have they completed their research, planned their work, or created a rough draft or outline?

• If students have the computer experience, have them participate in the setting of realistic standards and expectations of the final project.

• Set guidelines for use of the tools and features of the software that are appropriate for your grade level and the project. Be sure students complete the required content before they add extras. They can add extras as time allows.

• Create a computer center where students can go to explore the software application before a formal project is due. This allows them to become familiar with the basic features. They can explore more sophisticated features as time allows. Have “cheat sheets” available.

• If you need access to more computers, check to see if another teacher who has computers will allow your student to use her computers during her free period. Check the availability of computers in the library and the computer lab.

Source: Active Learning with Technology. (2000). Austin,TX: Southwest Educational Development Laboratory,
Active Learning Environments

Materials for this activity can be found on the enclosed CD-ROM.
Step 1. A Quick Geography Concepts Review

Below is a quick review of some of those concepts you might remember from your days as a geography student. Use the world map to confirm your understanding.

The circumference of the earth is measured in degrees. Since it is a complete circle, the earth’s circumference is 360 degrees.

The earth’s circumference is divided by lines called:

**Longitude** These are the lines that go north and south from the North Pole to the South Pole

**Latitude** These are the lines that go around the globe parallel to the equator.

The **Prime Meridian** — 0º longitude. This is the point of reference from which east or west longitude is calculated and runs north/south through Greenwich, England. Longitude is expressed east or west, up to 180 degrees.

The **Equator** — 0º latitude. This is the point of reference from which north or south latitude is measured. One of the continents that it crosses is Africa. Latitude is expressed north or south, up to 90 degrees.

Exact positions on the globe are calculated by the intersection of a line of latitude with a line of longitude.

The location of Greenwich, England is found at 0º longitude and 51º N latitude. This is the location of the Greenwich Observatory where the concept of longitude was invented!

Check your understanding

Is North America located (north or south) latitude and (east or west) longitude?

Is Australia located ((north or south) latitude and (east or west) longitude?

**How to use the Cylindrical Projection handout**

This map divides the earth’s surface into 10 degree increments. You can manually estimate latitude and longitude locations from this map. Use this handout to calculate the degrees north/south/east/west for navigating to the different sites during the next activity. First identify the Equator and the Prime Meridian on the map.
Step 2. Practice Navigating the Earth
Now that you have reviewed basic geography concepts, follow the steps below to practice using your navigational tool, the Earth and Moon Viewer.


2. Click on the “sun” link in the first paragraph to view the earth from the sun. The latitude and longitude coordinates displayed correspond with the center of the image.

3. Change the altitude to 3000 km and check the “no night” option. You can also increase the image size if desired.

4. Then click “update”

5. Use the features of the Earth and Moon Viewer to navigate by latitude and longitude to complete the following geography challenges listed below.

6. Note: When using the features of the application to navigate, remember that you are always moving in relationship to 0º longitude and 0º latitude.
   
   So, if you navigate to 30º N, 85º E, you are moving 30 degrees north of 0º, 0º and 85 degrees east of 0º, 0º.

7. Proceed to the next page to start The Great Race!

Getting Started

Before you take off for your trip around the world, first practice navigating with the Cylindrical Projection Map and the Earth and Moon Viewer tools.

- Position yourself at 0 latitude and 0 longitude on the map.
- Navigate to 51 N latitude and 0 longitude. Remember, this is the location of Greenwich, England.
- Enter these coordinates into the Earth and Moon Viewer.
- Now, using the same strategy calculating degrees of latitude and longitude with the Cylindrical Projection Map, plot the coordinates for your hometown. Enter those coordinates into the Earth and Viewer.
- Now proceed to plot your journey around the world!

First stop: New Orleans

How quickly can you calculate the longitude and latitude coordinates? Insert those into the viewer. Are you correct? What are your estimated coordinates?

*Answers on the next page*

Second stop: Alaska

How quickly can you use calculate the longitude and latitude coordinates? Insert those into the viewer. Are you correct? What are your estimated coordinates?

*Answers on the next page*

Third stop: Australia

Tip: Australia is in the southern hemisphere and up until now, you’ve been navigating in the northern hemisphere. What are your coordinates?

*Answers on the next page*

Final stop: North Pole

What are your coordinates? What is unique about the coordinates for the North Pole?

*Answers on the next page*

Now for your final challenge:

Start at Greenwich, England and rotate the earth ahead 6 hours.

**Hint:** How many degrees do you need to rotate the earth 1 hour?

How many degrees do you need to rotate the earth 24 hours?

*Answers on the next page*
Cylindrical Projection Map — 10 degree increments
Geography Challenge Answers:

1. New Orleans is located at 30º N and 90º W.

2. Alaska includes coordinates around 60º N and 150º W.

3. Australia includes coordinates around 30º S and 130º E.

4. The North Pole is located at 90º N and any longitude! All longitude lines converge at the poles, so any longitude works.

5. The earth rotates a full 360º in 24 hours, so 360º / 24 hr. = 15º for 1 hour. The longitude must be changed 90’ (15 x 6) in order to rotate the earth by 6 hours. Since the earth rotates in a counterclockwise direction, you can add 90’ to longitude west or subtract 90’ to longitude east.
### Technology as a Tool: Type I and II Applications

For Creation, Communication, Exploration, Investigation, and Discovery, and Building Skills

<table>
<thead>
<tr>
<th><strong>Type I Applications</strong> (1)</th>
<th><strong>Type II Applications</strong> (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Almost everything that happens on the screen and the interaction between user and machine is predetermined by the developers of the software.</td>
<td>1. The user, rather than the software developer, is in charge of the interaction with the content.</td>
</tr>
<tr>
<td>2. Students learn “from” the computer which generally functions as a tutor.</td>
<td>2. Students learn “with” the computer when using this type of application.</td>
</tr>
<tr>
<td>3. Often used to diagnose and teach basic skills in a content area.</td>
<td>3. Usually aimed at accomplishing tasks such as personal productivity, creating products and projects, communication, investigation, and discovery.</td>
</tr>
<tr>
<td>4. Instruction is organized around specific objectives and often embodies a mastery approach to instruction.</td>
<td>4. It can take many hours of use before the user masters everything that a specific program is capable of doing.</td>
</tr>
<tr>
<td>5. Sometimes described as “full”</td>
<td>5. Sometimes described as “empty”</td>
</tr>
</tbody>
</table>

**Types**
- Drill and Practice
- Computer-based instruction (CBI)
- Computer Assisted Instruction (CAI)
- Tutorials
- Integrated Learning Systems (ILS)
- Games
- __Types__
  - Word Processing
  - Electronic presentations
  - Electronic spreadsheets
  - Digital multi media
  - Internet
  - E-mail
  - Concept mapping
  - Music
  - Simulations

**Product Names**
- Cognitive Tutor
- PLATO
- Waterford Early Reading Program
- Success Maker
- Odyssey
- __Product Names__
  - Microsoft Office Suite: Word, PowerPoint, Excel
  - Inspiration Concept Mapping

**Instructional Uses**
- __Instructional Uses__
- __Instructional Uses__

---

Principles of Technology Integration in the Classroom

The use of technology in the classroom should . . .

- Motivate students while engaging in authentic, real-world, relevant activities.
- Be integrated into the curriculum to enhance learning in content areas such as math, reading, science, social studies, and the arts.
- Promote opportunities for communication and collaborative in problem-solving activities.
- Support activities that promote higher-order thinking skills.
- Offer learners the opportunity to address civic, cultural and community issues.
- Support different learning styles.
- Be safe, operational, and accessible to all students.

Kimble, C. (May, 1999) The impact of technology on learning: Making sense of the research. Policy Brief, Mid-Continent Regional Educational Laboratory, Aurora, CO.
USA Puzzle and Geography Challenge Activity

For the USA Puzzle activity, you may choose to use one of the three following puzzles:

1. The USA Puzzle application which will work on PC’s only. This is a very small application and will need to be loaded onto each of the PC computers prior to the start of the activity. There are two parts to this puzzle. The first requires placing the states correctly on a blank map. The other is to place capitals correctly on the map. You can find it on the enclosed CD-ROM.

2. http://www.lizardpoint.com/fun/geoquiz/ An online puzzle

   This puzzle has world maps as well as a map of the United States. This is a point and click activity to correctly identify countries, providences, or states.


   This puzzle requires placing the state puzzle piece into the correct location.

For The Great Race: A Geography Challenge, access the simulator from this Web site:

Suggested Research Readings Regarding the Effectiveness of Technology in the Classroom

Select one or two from the following for the reading during Unit 2.

Review carefully the copyright information from the following organizations before you make copies to distribute. Most online resources will have a link on the page so that you can easily contact the owner of that information. Educational organizations are normally very cooperative in granting you permission. However, each organization will have its own policies regarding this practice and you must abide by those guidelines.

RBS Currents, Volume 7.1. Fall/Winter, 2003: “Technology in the Classroom”
http://www.rbs.org/currents/0701/does_technology.shtml
http://www.rbs.org/currents/0701/technology_classroom.shtml
http://www.rbs.org/currents/0701/computers_classroom.shtml

Practices Evident in Good Models of Teaching with Technology (GMOTT) from the Knowledge Loom: Educators Sharing and Learning Together.
http://knowledgeloom.org/practices3.jsp?location=1&bpinterid=1163&spotlightid=1163

An Educator’s Guide to Evaluating Claims About Educational Software from Learning Points Associates: North Central Regional Educational Laboratory.
http://www.ncrel.org/tech/claims
# Leading with Technology: Video Notes

<table>
<thead>
<tr>
<th>Ben Kramer</th>
<th>Hector Giron</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What was each principal’s vision or goal for technology?</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Explain how each principal supports technology in the following areas:**

<table>
<thead>
<tr>
<th>Administrative</th>
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<tbody>
<tr>
<td><strong>Students in the classroom</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Teachers</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Community/parent</strong></td>
<td></td>
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</table>

**Explain how each principal addresses the following:**

<table>
<thead>
<tr>
<th>Technology support</th>
<th></th>
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<tbody>
<tr>
<td><strong>Professional development</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Funding</strong></td>
<td></td>
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</tbody>
</table>

**How does each principal view their overall role regarding technology leadership?**

<p>| | |</p>
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<th></th>
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<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>
From your readings, identify key attributes, skills, visions, or technology initiatives of technology leaders not shown in the video.

Administrator # 1

Administrator # 2

Administrator # 3

Administrator # 4

Administrator # 5
Select a reading that provides additional descriptions of technology school leaders from the list below. Use Handout 3-2, Reading Review Form for note-taking about the reading.

- Administrator profiles and narratives from the ISTE for Administrators brochure or from the ISTE Web site
  http://cnets.iste.org/administrators/a_profiles.html


- 5th Annual Tech Savvy Superintendent Awards from E-School News
  http://www.eschoolnews.com
Personal Digital Assistants (PDAs): Resource Readings

Select an appropriate resource to supplement the PDA activity.

1. What others say:
   This page provides educators with resources for effective use of the handheld computer in support of teaching and learning. The site includes supporting Web sites, links to hardware.
   http://kathyschrock.net/power/

2. A collection of articles about PDAs:
   http://www.remc11.k12.mi.us/bcisd/classres/mobile.htm

3. Using PDA for administrative uses:
   Education in Hand
   http://www.districtadministration.com/page.cfm?p=328

4. Classroom observation software sources:
   Tec Observe software for the PALM can be ordered from this site:
   http://www.portadata.com/products.htm

   Handbase software can be customized to your individual needs. It can be reviewed and purchased from this website.
   http://ddhsoftware.com/forms.html?
The Planning Process

1. Create the Vision
2. Assess the Need
3. Establish outcomes and objectives
4. Create Timelines
5. Evaluate
6. Report and Communicate
7. Reflect and Revise
The Planning Process:
Practice Activity Worksheet

**Situation Description**
Your eighth-grade students are scoring very low on their technology skills tests in the area of communication via the use of e-mail and other electronic tools. Scores indicate that they do not use or cannot use those tools for collaborative projects and to conduct research.

**Step 1. What is the perceived problem, need, or issue?**
Possibilities: Lack of access, school policy, lack of know-how, support issues

**Step 2. How could you assess this problem, need, or issue?**
Handouts 4-3 and 4-4
There are several possible ways depending on the number of students or teachers in this situation such as: one-on-one interviews, surveys, questionnaires, or walkabout observations.

**Step 3. What technology tool would help you assess the need?**
Handouts 4-5

**Step 4. What is a possible solution?**

**Step 5. What would be your outcome/objective? (Create outcome statements or objectives)**
Handouts 4-6

**Step 6. How would you evaluate your outcome or objectives? What questions would you ask to know if you have achieved your outcomes or objectives?**
Handout 4-7, 4-8, 4-9

**Step 7. What will be your data sources and collection method?**
Handouts 4-10, 4-11

**Step 8. How will you analyze and report your data? Who will carry out the work?**
The Planning Process: Complete Practice Activity Worksheet

Situation Description
Your eighth-grade students are scoring very low on their technology skills tests in the area of communication via the use of e-mail and other electronic tools. Scores indicate that they do not use or cannot use those tools for collaborative projects and to conduct research.

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Step 2. How could you assess this problem, need, or issue?
Handouts 4-3 and 4-4
There are several possible ways depending on the number of students or teachers in this situation such as:
one-on-one interviews, surveys, questionnaires, walkabout observations.

Step 3. What technology tool would help you assess the need?
Handout 4-5
Online or newly created survey tools, observation checklists, online self-assessments of attitudes, skill, school climate, instructional practice

Step 4. What is a possible solution?
This will depend on the results of the needs assessments. There may be several tentative solutions proposed at this time.

Step 5. What would be your outcome/objective? (Create outcome statements or objectives)
Handout 4-6
This will be based on the outcomes of a needs assessment and could be stated as follows:
(a) Provide xx % student access with an e-mail account by year 2006.
(b) Provide student training on e-mail
(c) Provide teacher training on e-mail
(d) Integrate e-mail into classroom activities.

Step 6. How would you evaluate your outcome or objectives? What questions would you ask to know if you have achieved your outcomes or objectives?
Handouts 4-7, 4-8, and 4-9
(a) Does student access to an e-mail account improve their e-mail scores?
(b) Does student training on e-mail improve their e-mail scores?
(c) Does teacher training on e-mail improve students’ e-mail scores?
(d) Does integration of e-mail into classroom activities improve students’ e-mail scores?

Step 7. What will be your data sources and collection method?
Handouts 4-10 and 4-11
There are several possible data sources—assessments, surveys, questionnaires, walkabout observation. Collection methods might be use of electronic tools such as Excel or online tools via INSIGHT.

Step 8. How will you analyze and report your data? Who will carry out the work?
Electronic tools for analysis: Excel, online analysis with INSIGHT, or other tools.
Data reporting: Determine who needs the data and in what form—school board, superintendent, the press, the community, U.S. Department of Education?
Who will carry out the work? Will it be your district’s assessment department, or an external evaluator?
Conducting an in-depth analysis of your technology needs—whether it be for the classroom, the whole school, or for the district—is part of a larger program evaluation effort.

Historically, implementing technology for technology’s sake without regard for how the use of the technology will be integrated with the curriculum has failed. The lesson learned from past technology implementation efforts is that a technology needs assessment is more effective when the analysis is based on curricular goals and available resources. Available resources include not only existing hardware and software, but also the capacity to acquire funds for infrastructure to provide on going professional development programs for the teachers who will be using the technology in their classrooms and to inform the administration about educational uses for technology that support systemic reform.

A needs assessment may occur at various levels of the organizational structure. The planning committee should decide, based on goals and resources, the extent to which the technology will be infused into the daily operation of the classroom or school.

Technology plans typically categorize technology implementation needs into two broad categories: administrative technology needs and instructional technology needs.
Rules of Thumb for Conducting Your Needs Assessment

1. Involve representatives from among all stakeholders in the collaborative needs assessment process.

2. Keep your vision of essential learning goals as the primary focus for your needs assessment.

3. Document the information you already have that informs answers to primary questions.

4. Identify gaps in your information that indicate what additional information needs to be obtained during the needs-assessment process.

5. Choose data collection methods and instruments that are appropriate for those from whom you are gathering your information.

6. Make a timeline and devise a plan for gathering your information.

7. Be sensitive that priorities emerging from your needs assessment may require some people to shift uses of their time and resources.

8. Analyze and synthesize all of your information about the various levels of needs, then set priorities and determine the implications for action.

9. Report your findings, priorities, and implications for action to all stakeholders to establish consensus about decisions based on the comprehensive needs assessment.

10. Respect and consider core values of the group of learners that the results of your needs assessment will target.

Permission granted:
[http://www.ncrel.org/tplan/handbook/ana4.htm]
Online Assessment Tools

INSIGHT Instrument Library
http://www.tct.unt.edu/

Or

START
http://www.tct.unt.edu/START/assess/tools.htm

These libraries of online tools provide a source of Web-enabled educational evaluation surveys and instruments, available for program/project evaluators in K–16 educational settings. Instruments within these libraries can be administered to any group, of any size, anywhere, at any time. Technical staff can handle all mechanical details of the administration, freeing the evaluator to focus on the results of the evaluation process. At the end of an administration, evaluators are provided with complete electronic copies of all data collected, as well as a variety of summary reports and simple statistical analyses on selected datasets.

Contact information:
TCET
P.O. Box 305280, Denton, TX 76203-5280
Phone: (940) 565-4433
email: tcet@unt.edu

Other online resources:

• ProfilerPro online assessment tool — http://www.profilerpro.com/

ProfilerPRO allows for the evaluation of knowledge, attitude, and skill based on simple surveys implemented via the World Wide Web. Inspired by Profiler, ProfilerPRO maintains the ability for members of a group to share knowledge and promote collaboration based on responses to skills-based survey items.

• A collection of surveys, reports, rubrics, standards and portfolios samples
http://www.tct.unt.edu/START/assess/

• A library of resources for assessing technology planning
http://www.4teachers.org/inttech/ta.php

• The Texas STAR chart (for Texas schools)
http://starchart.esc12.net/
Establishing Goals/Objectives and Writing Outcome Statements

The educational outcomes you establish are the foundation upon which your actions and interventions are ultimately based. As such, well-crafted and clearly articulated outcome statements promote the development of a logical chain of reasoning that leads to appropriate data collection questions and subsequent development of objectives, strategies, and activities.

Outcomes are measurable statements of the knowledge, skills, capabilities, habits, and attitudes you hope to achieve as a result of the educational actions, programs, or interventions you propose.

The components of any outcome statement should include:

1. Who/what is the targeted entity? (A)
2. What is the desired knowledge, skill, habit, or attitude? (B)
3. When will the outcome be realized? (C)
4. To what degree will the outcome be realized? (D)

Or

A = Audience
B = Behavior
C = Condition
D = Degree

Example

100% (4-D) of district wide core academic teachers (1-A) will be certified (2-B) by year 2006 (3-C).
# Tips for Writing Outcome Statements

<table>
<thead>
<tr>
<th>Needs Improvement</th>
<th>Better</th>
</tr>
</thead>
</table>
| **Use measurable verbs.** | To promote  
To understand  
To encourage  
To enhance  
To support  
| To increase  
To write  
To meet  
To begin  
To eliminate  |
| **Focus on a singular end-product.** | Teachers will be certified and teaching in their major field.  
| All teachers will be certified by 2008.  
All courses will be taught by a teacher certified in that field by 2008.  |
| **Practice economy of language.** | To maximize the capabilities of professional staff and use taxpayer resources wisely while engaging therapeutic interventions and case management processes so that children's developmental capacities are unencumbered by adverse environmental circumstances or experiences.  
| All children will receive age-appropriate instruction in a safe environment during school hours.  |
| **Separate goals and outcomes from strategies and activities.** | Math achievement will improve through the professional development of math teachers including training on problem-solving approaches, examining student work, and study groups.  
| Fifth grade student math achievement scores will increase each year to meet satisfactory AYP by the year 2010.  |

Writing Evaluation Questions

The evaluation questions that you write should be stated so that they ask about your proposed outcome/goal and can be assessed or measured by some data collection method. That is, how will you know if you have achieved your outcomes as stated in your outcome statements?

Guidelines for Writing Good Questions

• Try to ask questions directly related to what you are evaluating. That is, what do you want to evaluate regarding your outcome/goal statement?

• Keep the language simple and easy to understand.

• Make sure your questions are focused and not ambiguous.

• Keep in mind these are “investigative” or guiding questions for your evaluation work, not questions that you would actually use on a questionnaire with the target audience.

• For very large, complex, and long-range goal/outcome statements, it may be more productive to write the questions to the smaller objectives.

• Indicators (see next page)

Practice Writing Evaluation Questions

Outcome Statement _____________________________________________________________

Objective _____________________________________________________________

Evaluation Questions ____________________________________________________________

____________________________________________________________

____________________________________________________________

____________________________________________________________
The evaluation questions that you write should be stated so that they ask about your proposed outcome/goal and can be assessed or measured by some data collection method. That is, how will you know if you have achieved your outcomes as stated in your outcome statements?

### Suggested Indicators for Writing Evaluation Questions

<table>
<thead>
<tr>
<th>Category</th>
<th>Possible Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School Climate</strong></td>
<td>• Student, teacher, parent, and staff satisfaction&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Student, teacher, parent, and staff attitudes&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Physical condition of the building&lt;br&gt;</td>
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<tr>
<td></td>
<td>• Student attendance rates&lt;br&gt;</td>
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<tr>
<td></td>
<td>• Staff attendance rates&lt;br&gt;</td>
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<tr>
<td></td>
<td>• Parent involvement (kind and frequency)&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Parental compliance with school requests&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Communication with parents (kind and frequency)&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Teacher retention rate&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Teacher transfer requests&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Discipline referrals&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Student participation in extracurricular activities&lt;br&gt;</td>
</tr>
<tr>
<td><strong>Student Achievement</strong></td>
<td>• Standardized test performance&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Standardized performance assessments&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Grades&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Promotion rates&lt;br&gt;</td>
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<tr>
<td></td>
<td>• Graduation rates&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Enrollment in advanced courses&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Attendance rates&lt;br&gt;</td>
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<tr>
<td></td>
<td>• Post-secondary enrollment rates&lt;br&gt;</td>
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<tr>
<td><strong>Instructional Quality</strong></td>
<td>• Curriculum alignment to standards&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Vertical curriculum alignment&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Teacher advanced degrees&lt;br&gt;</td>
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<tr>
<td></td>
<td>• Teacher certification&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Longitudinal achievement data&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Teacher participation in professional organizations&lt;br&gt;</td>
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<tr>
<td></td>
<td>• Instructional approaches&lt;br&gt;</td>
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<td></td>
<td>• Teacher presentations at professional conferences or publications in journals&lt;br&gt;</td>
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<tr>
<td></td>
<td>• Teacher performance appraisals&lt;br&gt;</td>
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<tr>
<td></td>
<td>• Lesson plans&lt;br&gt;</td>
</tr>
<tr>
<td></td>
<td>• Student work samples&lt;br&gt;</td>
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<tr>
<td></td>
<td>• Assessment samples&lt;br&gt;</td>
</tr>
</tbody>
</table>

Sources for data will range from existing student management databases to surveys or interview protocols you might develop locally. When selecting or developing instruments for data collection, there are two primary concerns: the reliability and validity of the instruments. Reliability refers to how consistently an instrument gives a particular result. Validity refers to the degree to which the instrument actually measures what it purports to measure. Whenever possible, select instruments that have demonstrated reliability and validity. Always be conscious of the limitations involved in utilizing instruments for which you do not have reliability and validity information. Because of these limitations, using multiple data collection methods will generally allow for more confidence in results. It is also advisable to utilize a combination of qualitative and quantitative collection methods whenever possible. Each tend to yield different kinds of information to different degrees and in combination generally provide a more complete picture of what is going on.

Most important is the use of measurements that are closely aligned with the purposes outlined by your outcome statements and evaluation questions. No one data collection method is best. All methods are appropriate for particular purposes and yield information within particular contexts. Careful consideration of these contextual constraints is required to prevent drawing inappropriate conclusions.

**Formative evaluation** is conducted during the operation of a program to provide program directors with evaluative information that is useful in improving the program. Formative evaluation leads to decisions about program development.

**Summative evaluation** is conducted at the end of a program to provide funding agencies or potential consumers with judgments about the program’s worth or merit. Information gathered during the program can be used to shape the summative evaluation. Summative evaluation leads to decisions concerning program continuation, termination, expansion, or adoption.

**Qualitative data** is a term often used to represent verbal or narrative pieces of data. These types of data are collected through focus groups, interviews, opened-ended questionnaire items, and other less structured situations.

**Quantitative data** is a term used for those data that can be measured, analyzed, quantified through various metric techniques. These type of educational data are frequently collected through surveys, questionnaires, and standardized test instruments.
## Data Collection: Methods and Sources

The following table summarizes some common data collection methods and sources in educational settings. It is by no means exhaustive, but it provides a starting point when you are thinking about the range of methods and sources from which you might choose.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Examples</th>
<th>Features</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>To collect in-depth information on a specific topic, group, environment, etc.</td>
<td>Interview or focus groups</td>
<td>Allows in-depth responses and probing of details</td>
<td>Reactive, indirect, subjective reporting; time consuming; expensive; susceptible to interviewer bias; focus groups may inhibit individual expression; limited sample size</td>
</tr>
<tr>
<td>To collect information on the nature and extent of a specific set of data</td>
<td>Surveys and questionnaires</td>
<td>Inexpensive; self-administered; can be anonymous; can be made widely available; permits sampling of a population</td>
<td>Reactive, indirect, subjective reporting; self-selecting sample may not be representative; items may be misunderstood; oversimplification of complex phenomena</td>
</tr>
<tr>
<td>To collect in-depth information within an authentic context</td>
<td>Observations</td>
<td>Natural, real-time setting provides context for data; permits direct collection of data</td>
<td>Unique or idiosyncratic features or events may allow for minimal generalizability; susceptible to observer bias</td>
</tr>
<tr>
<td>To collect comprehensive curricular data in regular intervals and longitudinally</td>
<td>Curriculum management systems</td>
<td>Readily accessible; both current and historical data; possible to collect large amounts of complex data across systems at regular intervals</td>
<td>Expensive: Design may limit range of data that can be collected and reported; training is required to use systems; susceptible to data entry error</td>
</tr>
<tr>
<td>Purpose</td>
<td>Examples</td>
<td>Features</td>
<td>Considerations</td>
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<tr>
<td>To collect comprehensive assessment and other student data at regular intervals and longitudinally</td>
<td>Assessment and student management systems</td>
<td>Readily accessible; both current and historical data; possible to collect large amounts of complex data across systems at regular intervals</td>
<td>Expensive; design may limit range of data that can be collected and reported; training is required to use systems; susceptible to data entry error</td>
</tr>
<tr>
<td>To measure aptitude or achievement against that of a norm group</td>
<td>Standardized, norm-referenced aptitude or achievement tests</td>
<td>Established reliability and validity; generally long-lived; results are generally independent of instructional influence</td>
<td>Large content domain is only sampled (difficult to establish what has been learned)</td>
</tr>
<tr>
<td>To measure aptitude or achievement against specified content domains</td>
<td>Standardized, criterion-referenced aptitude or achievement tests</td>
<td>Established reliability and validity; specific learning objectives assessed</td>
<td>May be short-lived (subject to content domain revision); susceptible to influence by instructional practices; passing standards may be arbitrary or set very low; difficult to measure higher-level cognitive skills</td>
</tr>
<tr>
<td>To measure aptitude or achievement in an authentic context</td>
<td>Performance assessments</td>
<td>Authentic demonstrations of knowledge and skills; ability to measure higher-level cognitive skills</td>
<td>Expensive; time-consuming to develop and administer; susceptible to inconsistent scoring; performance tasks may not be representative of a larger body of knowledge</td>
</tr>
</tbody>
</table>

Sample Data Collection Plan

Need/Issue: ____________________________________________________________

Outcome statement: _____________________________________________________

Questions: _____________________________________________________________

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Examples: School Climate, Student Achievement, Instruction, Policy &amp; Support</th>
<th>Existing or New</th>
<th>Data Source/Method</th>
<th>Data Type Qualitative or Quantitative</th>
<th>Frequency of Collection</th>
<th>Duration of Collection</th>
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Small Group Activity: Scenario

Your school board will award $150,000.00 to the campus that proposes the best uses of technology to improve student learning in science in preparation for the state middle school science test. Three stakeholder groups have been identified: student, teacher, and administration. Your elementary school has decided to accept the challenge and has formed several smaller teams who will determine the needs of the different stakeholder groups and propose some recommendations.

Here are some available school data to help you in this activity:

- West Ridge Elementary, Pre-K through sixth grade, serves the Westwood community area, which is a developing, yet semi-rural, area adjacent to a mid-size city. For the 2003–2004 school year, enrollment was 655 students. Average daily attendance for the entire school year was 97%. The teacher to student ratio was 14 to 1. The campus staff includes 2 administrators, 47 teachers, 3 professional support personnel, and 9 educational aides. In 2002, the campus was rated “acceptable” by the state education agency.

- From available test data, the elementary science test, given in grade 5, continues to be a major challenge for this elementary campus. The current test in use indicates a 55% passing rate. In two years, there will be a required middle school state science test. The district will be mandating changes to the elementary and middle school science programs to address this concern.

- Your campus has one campus technology coordinator and a limited professional development budget. Most teachers have no more than three computers in their classrooms. All teachers have access to a lab, and the campus has Internet access to every classroom. Not all teachers are available to attend professional development sessions at the same time. All of the teachers have morning, lunch, or after-school duty at different times during the year. In addition, there is a wide range proficiency with technology among the teachers. However, each teacher has and uses their e-mail account.

- The school has designated space for a Web page on the district’s main Web site, but it has only a minimum amount of information posted there. The school principal and assistant principals all have cell phones, e-mail accounts, and a computer workstation on their desk.

Based on this scenario, use the attached worksheet as a guide to plan a recommendation for the best uses of technology to improve student learning in science in preparation for the state middle school science test.
Situation Description

Based on available test data, the elementary science test, given in grade 5, continues to be a major challenge for this elementary campus. The current test in use indicates a 55% passing rate. In 2 years, there will be a required middle school state science test. The district will be mandating changes to the elementary and middle school science programs to address this concern.

Step 1. What is the perceived problem, need, or issue?

Step 2. How could you assess this problem, need, or issue?
Handouts 4-3 and 4-4

Step 3. What technology tool would help you assess the need?
Handout 4-5

Step 4. What is a possible solution?
Step 5. What would be your outcome/objective? (Create outcome statements or objectives)
Handout 4-6

Step 6. How would you evaluate your outcome or objectives? What questions would you ask to know if you have achieved your outcomes or objectives?
Handouts 4-7, 4-8, and 4-9

Step 7. What will be your data sources and collection method?
Handouts 4-10 and 4-11

Step 8. How will you analyze and report your data? Who will carry out the work?
The National Educational Technology Plan

For a complete version of the National Educational Technology Plan and details of its several action steps, go to:

http://www.nationaledtechplan.org/default.asp

Technology Fact Sheet

For more information from the U.S. Department of Education, access the Education Technology Fact Sheet at:

http://www.ed.gov/about/offices/list/os/technology/facts.html
PowerPoint® Presentation Slides

1. **The Planning Process**
   - Reflect and Review
   - Create the Vision
   - Assess the Need
   - Establish outcomes and objectives
   - Report and Communicate
   - Create Timeline
   - Evaluate

2. **Where are We Going?**
   - Create and Communicate the vision

3. **What is the Perceived Priority/Problem/Need?**
   - Assess the Need
   - Conduct a needs assessment

4. **What are we going to do to fix it?**
   - Establish Outcomes & objectives
   - Write outcome statements

5. **How will we know that it’s fixed?**
   - Evaluate the Outcome
   - (Evaluation Process)

6. **So, What about the Details?**
   - Create activities & timelines

7. **Who Needs to Know?**
   - Report and communicate results

8. **How can we improve?**
   - Reflect and Revise
# Application Challenges

These activities focus on a single topic and are designed to allow participants the opportunity to more thoroughly explore an area that is relevant to them. Application Challenges are designed to be carried out in an online format with electronic discussions and collaborations. The following challenges can be carried out in any order.

Go to this Web site for details, enrollment, participation, and for current selections of Application Challenges: [http://sedl.alcaweb.org](http://sedl.alcaweb.org)

<table>
<thead>
<tr>
<th>Effective Technology Integration</th>
<th>Active Learning with Technology — ALT Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities will focus on identifying the elements of effective technology integration in the classroom, creating a rubric for observations, and then conducting classroom walkthroughs to document how teachers and students in the classroom use technology.</td>
<td>This series of online courses introduce the essential principles for creating effective learner-centered classrooms supported by technology. This program is primarily designed for teachers, however, the Foundations course provides an opportunity for an administrator to experience practical ways that technology supports learning.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology Planning</th>
<th>Using Technology to Improve Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants will analyze their own campus improvement plan in regard to their newly formed vision and new insights they have gained from the Foundations course. They will determine where there is a gap between their vision and a need. Use of technology and technology tools is emphasized.</td>
<td>Participants will work in collaborative teams and use a variety of technology communication tools to fulfill the requirements of a donation by a community member.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NCLB: Using Data for Results Data-Driven Decision Making</th>
<th>Special Education &amp; Technology Part I: Universal Design for Learning: Meeting the Needs of All Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>This activity is a tool for schools to use to identify, gather, and analyze data to assist them in improving outcomes. After organizing a team made up of all stakeholder groups, the activities lead the group through the data analysis process to the creation of action items designed to achieve the goals established by the school or district.</td>
<td>Participants use Internet resources and concept mapping software to explore the principles of Universal Design for Learning and examine lessons for evidence of their application.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Go to this Web site for details:</th>
<th>Go to this Web site for details:</th>
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<tr>
<th>Special Education &amp; Technology Part II: Technologies for Students with Learning Differences</th>
<th>Managing Technology Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants review Web sites for accessibility and identify various adaptive and/or assistive technologies for use by learners in completing reading or writing tasks.</td>
<td>The activities in this challenge will focus on understanding the various hardware and software issues of a technology program. Participants will use the “Vendor Survival Guide” for one of their decision-making tools.</td>
</tr>
</tbody>
</table>

For information regarding Application Challenges delivery:
SEDL facilitated or certification of your trainer, please call: Marilyn Heath 1-800-476-6861 x 272
Notes