Examples of Technology Use Tool

Build Knowledge and Skills	What technologies will you use and how will you use them?	
	Familiar	**New or Extended**
Explore and Collect Information		
Students browse, search, explore, and obtain information from around the world.	Browse in libraries.	Interact with CD-ROMS and laserdiscs.
	Read, skim, or study books, encyclopedias, and other print materials.	Explore Web sites bookmarked by the teacher.
Engaged and Worthwhile Learning Questions	Visit museums.	Write to experts and friends via e-mail.
How will you guide students to seek a sufficient number of sources of information?		Explore databases.
How will you ensure that students explore worthwhile information?	Talk to experts and friends in person or on the telephone.	Listen in on listservs, then join the appropriate ones.
What strategies could students use so that their search is systematic rather than random and that the information they find is what they need?	Attend conferences and participate in special interest groups.	Use probeware to collect data.
	Listen to audiotapes.	Look at FAQs on Web sites.
	Explore microfiche for newspapers and other archives.	Explore question/answer Web sites (e.g., Ask Mr. Science).
		Conference on the Internet.
		Visit museums online.

Examples of Technology Use Tool (continued)

Build Knowledge and Skills	What technologies will you use and how will you use them?	
	Familiar	New or Extended
Make Connections		
Students make connections to prior knowledge and experiences.	Brainstorm with a flip chart and markers.	Use brainstorming software.
	Create a K-W-L chart. (Students identify what they KNOW about a topic, determine what they WANT to know about the topic, and then summarize what they LEARNED about the topic.)	Use concept mapping software.
Engaged and Worthwhile Learning Questions		Use storyboard software.
How will you ensure that concepts and tasks are authentically related to students' prior knowledge and experiences?		Create a classroom database of learning.
How will you help students tap their prior learning and experiences?	Review past learning and write it on the chalkboard.	View CD-ROMs of familiar and new ideas of events, concepts, and issues.
How will you guide students to confront and overcome their misconceptions?	Talk about similar and familiar situations and ideas. List them on a flip chart.	
	Categorize ideas, jot them on note cards, then connect the cards the way ideas seem to go together.	
	View videos and movies to activate prior knowledge about a topic.	
	View situations that promote cognitive conflict.	

Examples of Technology Use Tool (continued)

Build Knowledge and Skills	What technologies will you use and how will you use them?	
Retain Information	**Familiar**	**New or Extended**
Students deliberately remember information, ideas, strategies, and skills.	Take notes on note cards.	Record information using a word processor.
Engaged and Worthwhile Learning Questions	Keep a subject notebook.	Put information in a database.
How will you guide students to study, remember, and store important information?	Keep a journal.	Scan information onto a disk.
	Put information in special charts or graphic organizers.	
What retention or storage strategies might students use?	Record important information using video, still-camera, or audiotape.	
How might you model the use of retention and storing strategies?	Photocopy materials.	
	Rehearse using a tape recorder.	
	Create a filing system.	

Examples of Technology Use Tool (continued)

Build Knowledge and Skills *Reflect and Reason; Analyze and Evaluate Information*	What technologies will you use and how will you use them?	
	Familiar	**New or Extended**
Students ponder issues, problems, and ideas; deliberate; reason inductively and deductively; draw conclusions from evidence; chart, compare, examine, perform statistical analyses, and look for inconsistencies to reach conclusions, make decisions, solve problems, and plan and execute experiments; and judge the value of information. **Engaged and Worthwhile Learning Questions** How will you guide students to reflect on ideas related to their needs and interests and to perspectives of diverse groups? How will you guide students to draw conclusions based on sound reasoning? What opportunities will students have to judge the relevance of information? How can you guide students to synthesize their work?	Record reactions, confusions, and questions in a journal. Form and test hypotheses, collect evidence, and do statistical analyses. Compare and contrast theories, ideas, characters, and facts. Apply principles and ideas in one domain to another domain and to novel situations and examine interdisciplinary issues. Compare primary and secondary sources. Set criteria and standards. Use rubrics. Develop an evaluation tool.	Use word processing for reflection and writing. Use simulation software to apply principles and concepts to novel situations. Use software that promotes reflection and provides inductive and deductive reasoning questions and tasks. Reflect with others via e-mail, listservs, bulletin boards, or chat rooms. Use simulation software to set up simulated experiments. Develop an evaluation tool online or by using software. Link electronically with professional evaluators.

Examples of Technology Use Tool (continued)

Build Knowledge and Skills	What technologies will you use and how will you use them?	
	Familiar	**New or Extended**
Manipulate and Organize		
Students summarize, transform, and convert information; organize information logically in order to remember; analyze; and discover existing, new, or different relationships within and across disciplines.	Change measurement units (e.g., feet to miles, yards to meters).	Use software to create models (e.g., Model It).
	Write stories and summarize experiences.	Use spreadsheet software (e.g., Microsoft Excel).
Engaged and Worthwhile Learning Questions	Act out stories and historical events.	Use software to create graphic organizers, such as comparison charts and timelines.
In what ways can students change the form of information?	Draw a picture or cartoon to illustrate an idea, concept, or story.	Develop CD-ROMs or databases.
What tasks can reveal multidisciplinary connections and important but not necessarily obvious relationships among elements?	Make a timeline.	
	Put information into charts, graphs, or other graphic organizers.	
How can you guide students to summarize and synthesize their work?	Make an outline.	
	Put information in categories.	
	Use a calculator to change the format of data.	

Examples of Technology Use Tool (continued)

Build Knowledge and Skills	What technologies will you use and how will you use them?	
Appreciate	**Familiar**	**New or Extended**
Students develop and use aesthetic sense and ability.	View live performances.	Listen to music on CD-ROMs then read about the music or composer.
Engaged and Worthwhile Learning Questions	Read books and magazines.	Visit art, historical, and other cultural Web sites (e.g., Smithsonian Institution, Library of Congress).
How will these experiences fit with students' interests, foster new interests, and encourage reflection?	Visit museums and galleries.	Use CD-ROMs that provide music with missing portions; play the missing portions.
	Look at reprints and posters.	
How will students learn to respect different viewpoints regarding aesthetic experiences?	Observe local architecture.	Learn about museum and gallery collections or theater offerings by visiting their Web sites.
How will you guide and model appreciation without suggesting that there is only one way to understand something?	Attend sports events.	View and interact with CD-ROMs that focus on aesthetic experiences.
	View slides and videos.	
How can you guide students to critique art, music, theater, etc., based on appropriate aesthetic criteria?	Listen to audiotapes and compact disks.	
	View laserdiscs and films.	
	View video programs.	
	Listen to the radio.	

Examples of Technology Use Tool (continued)

Build Knowledge and Skills	What technologies will you use and how will you use them?	
	Familiar	**New or Extended**
Exercise Appropriate Habits of Mind Students recognize that different attitudes and habits of mind are appropriate for different learning issues and tasks. For example, students suspend disbelief when reading fiction, look critically at scientific data, and seek multiple points of view when discussing historical events. **Engaged and Worthwhile Learning Questions** How will you guide students to set standards of excellence based on the habits of mind appropriate to different domains? How will tasks reflect the real work and standards of different domains?	Research criteria that reflect habits of mind for different domains and tasks (e.g., narrow searches for information, communicate results and seek data to support/defeat it, and act as an unbiased observer). Talk to experts in person, by mail, or on the telephone.	Research habits of mind and criteria that reflect them for different domains and tasks by communicating with experts via e-mail, listservs, etc.

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Examples of Technology Use Tool (continued)

Build Knowledge and Skills	What technologies will you use and how will you use them?	
Observe Models; Imitate and Practice	**Familiar**	**New or Extended**
Students observe adults and more capable peers as they perform skills, imitate those skills, and practice the skills in both isolated and integrated situations. **Engaged and Worthwhile Learning Questions** How will you ensure that students have good models? How will you ensure that the skills modeled and imitated are important both in and out of school? How will you provide feedback and guide students to get feedback from their own practice? How will you encourage students to practice good decision making? How will you guide students to use skills in creating and performing?	Observe and imitate a live, skilled performance. Work with a partner or constructive friend to obtain immediate feedback. Participate in games that promote skill practice. Practice in authentic situations (e.g., read a book to practice reading). Observe a skilled performance on video or listen to one on audiotape, then imitate it. Record your own performance on video or audiotape.	Practice writing using a word processor. Correspond via e-mail with experts about skills related to their field of work. Monitor listservs to observe how experts converse and how they treat topics in their areas of expertise. Use CD-ROMs that present a musical performance with a part left out; play that part. Practice skills on Web sites and with software programs (e.g., Jason, Mayaquest, National Geographic KidsNetwork, or Oregon Trail).

Examples of Technology Use Tool (continued)

Learn Independently and With Others *Work Independently, Cooperatively and Collaboratively*	What technologies will you use and how will you use them?	
	Familiar	**New or Extended**
Students work independently, cooperatively, or in collaboration with others within and beyond the classroom and school, sharing resources, ideas, and tasks. **Engaged and Worthwhile Learning Questions** How will you guide students to be responsible for their own learning and to share tasks fairly? Which tasks are more appropriate for independent learning? for cooperative learning? for collaborative learning? How will you form equitable groups that meet students' needs and lesson requirements? How can students collaborate with others who are not present?	Write in a journal. Read a book. Write a paper. Do a jigsaw activity. Plan and carry out a major collaborative project. Share information and ideas via mail with students and experts in remote settings; conduct projects with them. With older students, watch and discuss management videos on teaming, paradigm shifts, and futurism.	Use videoconference software (e.g., CU-See Me). Participate in national networks (e.g., National Student Resource Center, World Classroom Telecommunication Network, and National Geographic KidsNetwork). Collaborate online (e.g., use CoVis Collaboratory Notebook). Use interactive learning environments (e.g., CSILE).

Examples of Technology Use Tool (continued)

Learn Independently and With Others	What technologies will you use and how will you use them?	
Assume Roles	**Familiar**	**New or Extended**
Students take on special roles in problem solving and other situations. **Engaged and Worthwhile Learning Questions** How will you guide students to assume both leadership and follower roles? How will you guide students to assume multiple roles when learning independently? How will students get feedback on their role performance?	Carry out various roles in a project. In a team, act as group leader, recorder, manager, peace keeper, reporter, or listener. Participate in simulations in teams or alone. Teach others. Evaluate the work of others.	Use simulation software (e.g., VistaPro). Participate in online, collaborative projects.

Examples of Technology Use Tool (continued)

Demonstrate Knowledge, Ability, and Creativity	What technologies will you use and how will you use them?	
Create	**Familiar**	**New or Extended**
Students produce original art, music, dance, theatrical works, and writing. **Engaged and Worthwhile Learning Questions** How can you ensure that the creative process is challenging and stimulating for students? How will you guide students to create things that are based on their interests and needs? How will you guide the creative process without suggesting that there is only one right way to create something? How will you encourage students to support and guide each other, be a considerate audience, and provide constructive feedback? Will students be able to collaborate on some creations?	Use paper and pencil or a typewriter for creative composing. Use paint, ink, scissors, silk screens, wood block, lithograph, clay, wood, metal, or stone to create visual art. Use music scores, voice, or instruments to compose. Choreograph a dance. Prepare storyboards for videos, films, skits, or plays. Produce a video or audio program. Take still photographs or slides. Produce a film. Create a film strip.	Use animation software. Use a word processor to write stories, essays, or scripts. Use a hypermedia program to create a multimedia project (e.g., HyperStudio). Use graphics and paint software programs.

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Examples of Technology Use Tool (continued)

Demonstrate Knowledge, Ability, and Creativity	What technologies will you use and how will you use them?	
Perform	**Familiar**	**New or Extended**
Students perform musical, theatrical, literary, and other works and demonstrate special abilities, such as in sports.	Perform musical works from scores.	Use a CD-ROM of a performance with one part left out; perform that part.
Engaged and Worthwhile Learning Questions	Read poetry or stories out loud to an audience.	Incorporate video footage of your performance into a multimedia product.
How will you guide students to interpret works?	Perform plays or skits from scripts.	
What models of performance will you provide for students?	Perform a dance.	
How will you guide students to be a good audience?	Engage in sports using sports facilities and equipment.	
What kind of feedback will students get?	Perform on the radio or create a video or audiotape.	
What will be the sources of feedback?	Perform on film.	
How will you ensure fair play and sportsmanship in competitive situations?	Direct the performance of others.	
	Coach others.	

Examples of Technology Use Tool (continued)

Demonstrate Knowledge, Ability, and Creativity *Construct Products*	What technologies will you use and how will you use them?	
	Familiar	**New or Extended**
Students produce reports, projects, experiments, and displays. **Engaged and Worthwhile Learning Questions** How will you guide students to make products that reflect important ideas in a lesson or unit? How will you guide students to select challenging tasks? How will you facilitate integrating content areas within products? How will you discourage copying or over-reliance on paraphrasing? How will you facilitate individual responsibility in group productions? How will you ensure that students practice new and familiar skills?	Use paper, pencil, pen, typewriter, or word processor to write a research paper. Create tables and charts on paper or posterboard. Prepare demonstrations. Create replicas/dioramas. Produce videos and audiotapes. Produce still photographs, films, slides, or film strips. Use excerpts from existing products.	Create a hypertext stack. Note: HyperStudio can use the Internet for a stack that changes along with its Web site. Write computer programs. Create multimedia presentations (e.g., Power Point, Media Text, HyperStudio, or Harvard Graphics). Use computer modeling programs (e.g., VistaPro 3D rendering program). Create Web pages and listservs.

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Examples of Technology Use Tool (continued)

Demonstrate Knowledge, Ability, and Creativity	What technologies will you use and how will you use them?	
	Familiar	**New or Extended**
Advise, Teach, and Persuade		
Students give advice, explain concepts and skills, generate novel examples and metaphors, compare and contrast, generalize, and present arguments.	Participate in debates.	Create software that teaches something.
	Teach or mentor peers.	Put interviews or debates online.
Engaged and Worthwhile Learning Questions	Conduct and transcribe interviews.	Conduct a debate via e-mail.
How will you model the above actions?	Record an interview or debate on video- or audiotape.	Prepare answers to FAQs (i.e., frequently asked questions).
How will you guide students to construct logical arguments?		Respond to questions from people in remote sites.
How will you ensure that students consider multiple perspectives?		
What will students be able to teach?		
How will you support students' undertaking a teacher role?		

Examples of Technology Use Tool (continued)

Demonstrate Knowledge, Ability, and Creativity *Control*	What technologies will you use and how will you use them?	
	Familiar	**New or Extended**
Students control variables in order to make something happen, discover relationships, or demonstrate some-thing. **Engaged and Worthwhile Learning Questions** What tasks encourage students to manipulate variables to answer worthwhile questions? How can students collaborate to set up experiments and other control situations? How can you guide students to attend to critical rather than trivial or irrelevant variables?	Manipulate variables in an experiment. Create a simulation. Write word problems for other students. Write endings for stories. Edit a story or essay. Demonstrate probability using coins, cards, or dice. Perform an exercise in a physical education class. Edit audiotapes, videos, or films. Participate in a simulation (e.g., in drivers education).	Use modeling software to create models. Create a simulation on a computer or online. Participate in an online simulation. Write word problems on a word processor. Revise or edit online. Use interactive software to view literary works. Use a spreadsheet to control variables and determine probabilities.

Examples of Technology Use Tool (continued)

Manage Learning	What technologies will you use and how will you use them?	
	Familiar	**New or Extended**
Set Goals and Define Problems		
Students set goals and define problems related to their own learning based on their knowledge of themselves and the way they learn.	Use problem-solving and goal-setting graphic organizers.	Conduct a needs assessment online or by using software.
	Conduct a needs assessment.	Take a learning styles inventory online.
Engaged and Worthwhile Learning Questions	Take a learning styles or other inventory (e.g., Myers-Briggs).	
How can you guide students to set learning goals that encourage them to achieve at the highest possible level?		
How can you help students identify problems worth solving?		
How can students work together to set mutual goals and solve mutual learning problems?		
How can you help students connect their goals to assessment?		
How will you ensure that goals and problems reflect students' interests and needs?		

Examples of Technology Use Tool (continued)

Manage Learning *Oversee*	What technologies will you use and how will you use them?	
	Familiar	**New or Extended**
Students manage their own learning, make and implement plans, manage data, manage and monitor projects, and revise plans and products. **Engaged and Worthwhile Learning Questions** How will you guide students to take responsibility for managing and monitoring their learning? How will collaboration help students learn to plan and monitor projects?	Post assignments. Use time management tools (e.g., Daytimers). Use an assignment notebook. Make a "to do" list. Use project management procedures and systems. Post reminders on a bulletin board. Set up and use a filing system. Put reminders on a telephone answering machine. Seek feedback from others on progress.	Use project management software. Use an electronic time-management system (e.g., Daytimers). Use calendar software. Create a spreadsheet using a spreadsheet program (e.g., Excel). Create a database using a database program (e.g., FileMaker Pro).

Examples of Technology Use Tool (continued)

Manage Learning	What technologies will you use and how will you use them?	
Reflect and Ask Questions	**Familiar**	**New or Extended**
Students think about what they are learning and doing, and ask questions based on their reflections to improve their learning.	Keep a journal, either with writing or drawing.	Participate in online groups (e.g., National Student Resource Center).
Engaged and Worthwhile Learning Questions	Keep an audio or video journal.	Participate in an online collaboration (e.g., CoVis Collaboratory Notebook).
How will you guide students to use reflection as a means to increase their responsibility for their learning?	Participate in a focused dialogue with a learning partner or critical friend.	Talk with others and ask questions via e-mail, listservs, or chat rooms.
How will you model reflection?	Participate in discussion groups.	
How will you model asking good questions?	Take part in Socratic questioning.	
How will you facilitate students' asking questions that encourage exploration and experimentation with concepts and ideas?	Write to a pen pal.	
	Take photographs.	

Examples of Technology Use Tool (continued)

Manage Learning	What technologies will you use and how will you use them?	
Evaluate Self and Others, Get Evaluated by Others, and Make Judgments	**Familiar**	**New or Extended**
Students assess themselves and others; are assessed by teachers, other adults, and peers; and evaluate materials, tasks, lessons, and products. **Engaged and Worthwhile Learning Questions** How will you ensure that assessment is ongoing? How can assessment help students become more responsible for their own learning? How will you work with students to create meaningful assessment criteria? What opportunities will students have to judge materials, tasks, products, and lessons? How will you guide them to make good judgments?	Work with a critical friend. Create criteria or rubrics for evaluating books, curriculum materials, tasks, lessons, products, and creative efforts. Create criteria or rubrics for evaluating videos, audiotapes, films, radio programs, CDs, transparencies, laser disks, and other commercial products. Give presentations (in person or using audio or video) for self- and class evaluations.	Work with a critical friend online. Talk with others online via e-mail, listservs, or chat rooms. Participate in collaborative, online projects (e.g., CoVis Collaboratory Notebook). Create criteria to evaluate software, Web sites, and other electronic resources.