

Part III

The NetSavvy Skills Framework

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The NetSavvy Skills Framework is a compilation of the skills needed for using the Internet to address information needs. It is the basis for teachers to use project-based learning to embed Internet skills in any subject and at any grade level. From a teacher's point of view, the Framework serves as a set of instructions on the how and what of teaching Internet skills, while the teacher tools serve as a step by step guide in how to use the Framework to this end. From a student's point of view, the Framework is a straight listing of the skills that should be learned to achieve information literacy in the use of the Internet. The student tools guide the student in developing Internet skills in the course of doing a project.

A Quick Summary of the 5As of Information Literacy

The 5As of Information Literacy comprise a 5 stage process for addressing any information need:

Stage 1: *Asking* (key questions to be answered)

Stage 2: *Accessing* (relevant data)

Stage 3: *Analyzing* (the acquired data)

Stage 4: *Applying* (the data to the task)

Stage 5: *Assessing* (both the end result and the process)

A Quick Summary of the Uses of the NetSavvy Skills Framework

The Skills Framework is organized in a way that is intimately tied to the 5As process of information literacy. The focus at each stage is on the "A. Essential Skills" (the skills required to implement each stage). At the same time, consideration must also be given to "B. Prerequisite Skills" (the basic skills the teacher assumes the students already have), "C. Techniques Skills" (or methods to implement the skills), "D. Technology Skills" (equipment needs for the project) and "E. Reviewing Skills" (the process of assessing how well each of the stages is learned and implemented.) Consequently the headings in the Skills Framework look like this:

Stage 1: *Asking*

A. *Asking* Essential Skill Sets

B. *Asking* Prerequisite Skill Sets

C. *Asking* Techniques Skill Sets

D. *Asking* Technology Skill Sets

E. *Asking* Review Skill Sets

Stage 2. *Accessing*

A. *Accessing* Essential Skill Sets

B. *Accessing* Prerequisite Skill Sets

C. *Accessing* Techniques Skill Sets

D. *Accessing* Technology Skill Sets

E. *Accessing* Review Skill Sets

Stage 3...

and so on...

Taking a Closer Look at the Layout of the Skills Framework

Some teachers may want just to scan the Framework for ideas to use on their own terms for use in a single lesson. We recommend starting with the 10 Minute Planner, whether the intent is to teach a single lesson, or to layout a quick overview of a large project. The layout of the Framework is a helpful guide for the lesson planning process, particularly when a teacher is organizing the details of a student project. Once the teacher has first used the Framework to complete the 10 Minute Planner, and has decided to proceed with a project, the next step is to photocopy blanks of the 5 Teacher Tools that correspond to using the 5 stages of the NetSavvy process, and to make sample copies of the student tools.

The teacher now has all that is needed to proceed. The Content objectives that were listed on the 10 Minute Planner should be right at hand to be born in mind, as well as the assessment objectives that were listed. Turning to the Framework, the The Essential Skill Sets (A) can be used as a checklist to get a sense of the information literacy skills that students already have, and the extent to which these skills

have been mastered. The remaining skills in the Essential Skill Sets represent the skills the students do not have, or that need to be reinforced. The teacher can then consider introducing these skills into the learning activities of the project. The Prerequisite Skill Sets (B) should be consulted to quickly check that students have the prerequisite skills needed to complete the project. If the teacher suspects the students are weak in an area, this will have to be confirmed in class by questioning or testing. The Technique Skill Sets (C) help the teacher and students to consider the different methods that could be used to work through each stage of the 5As process. The Technological Skill Sets (D) identify possible technologies and technology skills that students could use to complete the project and the equipment that teachers will have make sure is available. The Review Skill Sets (E) are used to consider how teachers and students can review and reflect on whether their goals have been met at each stage of the NetSavvy process.

The Skills Framework Symbols

There are a number of variables in any given teaching situation that can greatly affect instructional strategies and outcomes. Such issues as learning styles, skill levels, prior experience and knowledge can greatly impact when and how skills can be most effectively introduced. The exact grade levels when information literacy skills for NetSavvy should be taught will depend to a great extent upon the abilities of your students, your instructional learning objectives, and the time frames in which you are working. With this in mind, and based on field testing, we have tried to approximate the grade levels at which the skills may be most appropriately introduced, mastered and reinforced.

The symbols E, M and R are used in the Skills Framework to suggest that level of understanding of the skill appropriate to the grade level (as shown in the key below).

Key: E = Emerging, M = Mastering, R = Reinforcing

The first level, E, is an introductory or emergent stage in the development of the skill where the teacher is most heavily involved. The second level, mastery, M, indicates that students understand the skills and can apply that understanding with some assistance from the teacher. The third level, R, is where students can perform the skills on their own and can engage in activities to maintain and extend the understanding.

The symbols P, I, M, H, and + indicate the grade levels within which the different skills are best introduced, mastered or reinforced. P represents Primary (gr. K-2), I represents Intermediate (gr. 3-5), M represents Middle School (gr. 6-9), H represents High School (gr. 10-12), and + represents Post Secondary level.

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Stage 1: Asking

Skills for Preparing Questions

The *Asking* stage is the key to engaging students in the learning process. The teacher introduces a topic and guides the students to generate their own questions related to that topic. This more clearly defines the boundaries for research. Questions posed by students and teachers clarify the information needs and define possible paths for inquiry using the Internet, as well as other electronic or traditional paper-based sources.

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1A. Asking Essential Skill Sets

P I M H +

	P	I	M	H	+
1. Critical Conversing Skill Set—Observing & Questioning					
a. Questions whether what an individual says is contradicted by their actions (congruent/incongruent behavior)			E	E	M
b. Questions whether what an individual says is contradicted by their non-verbal messages (congruent/incongruent behavior)			E	E	M
2. Critical Conversing Skill Set—Listening & Questioning					
a. Analyzes speakers’ purpose (information, rapport, influence, sales...) to develop responsive questions		E	M	R	
b. Interprets speakers’ perspective (objective, subjective, self-serving...) to develop responsive questions			E	M	R
c. Identifies speakers’ persuasive techniques (promises, challenges, flattery...) to develop responsive questions			E	M	R
d. Distinguishes between speakers’ opinion & verifiable fact to develop responsive questions			E	M	R
e. Interprets subtle verbal messages (sarcasm, exaggeration, double meanings, innuendo) to develop responsive questions		E	E	M	R
3. Critical Conversing Skill Set—Thinking & Questioning (Fig. 5.2 & 5.3)					
a. Asks questions which focus on new areas of knowledge & application		E	E	M	R
b. Uses personal interpretations of experiences, stories, poems, plays or movies to generate questions	E	E	M	R	
c. Asks follow-up questions related to resources, obstacles, goals, possibilities...)		E	M	R	
d. Asks probing clarifying questions derived from answers received		E	M	R	
e. Asks hypothetical questions for exploring possibilities & testing relationships (what might happen if...?)		E	M	R	
f. Asks questions related to essential life questions (purpose, identity, integrity, courage, invention, inspiration, faith, life, death...)	E	E	E	M	R
g. Conveys subtle verbal & non-verbal messages while posing questions			E	M	R
1B. Asking Prerequisite Skill Sets					
1. General Observing Skill Set					
a. Addresses personal barriers to effective observing (visual impairment, color blindness, light sensitivity...)		E	E	M	R
b. Addresses external barriers to effective observing (visual distractions, lighting, physical obstacles...)	E	M	R		
c. Interprets & evaluates speakers’ facial expressions		E	M	R	
d. Interprets & evaluates speakers’ gestures & body language		E	M	R	

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2. General Listening Skill Set

P I M H +

a. Addresses personal barriers to effective listening (hearing problems...)		E	E	M	R
b. Addresses external barriers to effective listening (noise, visual distractions...)	E	M	R		
c. Determines the purpose for listening (advice, opinions, solutions, facts, anecdotes, rapport...)		E	M	R	
d. Responds to tone of voice appropriately	E	M	R		
e. Responds to directions & questions	E	M	R		
f. Listens attentively to oral presentations (information, stories, opinion, advice...)	E	M	R		

3. General Speaking Skill Set

a. Addresses personal barriers to effective speaking (speech impediments...)		E	E	M	R
b. Addresses external barriers to effective speaking (noise, visual distractions...)	E	M	R		
c. Responds verbally to tone of voice	E	M	R		
d. Responds verbally to directions & questions	E	M	R		
e. Determines purpose for speaking (advice, opinions, solutions, facts, story...)	E	E	M	R	

1C. Asking Techniques Skill Sets

1. Brainstorming Skill Set

a. Creates idea maps		E	E	M/R	R
b. Employs brainstorming, clustering & webbing techniques individually or cooperatively to develop questions	E	E	M	R	

2. Question Forming Skill Set

a. Considers which groups or individuals may have done best work on subject		E	M	R	
b. Considers which media are likely to be the best sources for data on subject		E	M	R	
c. Considers how the topic relates to essential life questions (purpose, identity, integrity, courage, invention, inspiration, faith, life, death...)	E	E	E	M	R
d. Considers follow-up questions related to goals, resources, obstacles...)	E	E	M	R	
e. Considers hypothetical questions for exploring future possibilities & testing possible relationships or scenarios (what might happen if ...?)	E	E	M	R	
f. Uses personal strategies for selecting, developing & refining a topic		E	E	M/R	R
g. Considers the topic at some point in the past (before you were born, pre-1900, pre-1492, pre-human contact...)		E	E	M/R	R
h. Considers the topic at some point in the future (10 years, 100 years, 1000 years)		E	E	M/R	R

3. General Conversing Skill Set

a. Addresses barriers to effective conversing (speech problems, shyness, ESL...)		E	M	M/R	R
b. Determines the purpose for conversing (seeking advice, opinion, solutions, facts, anecdotes, rapport...)			E	M/R	R
c. Uses appropriate rate, volume, pitch, tone for the audience & setting	E	E	E	M/R	R
d. Adapts word choice, diction & usage to the audience, purpose & occasion	E	E	E	M/R	R
e. Uses non-verbal gestures (giving directions, introductions, making announcements...)	E	E	E	M/R	R

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4. Critical Conversing Skill Set

P I M H +

a. Determines what is already known & what needs to be known		E	E	M/R	R
b. Assesses the current knowledge base on the topic		E	E	M/R	R
c. Analyzes preconceived ideas & biases related to the topic (personal & others)		E	E	M/R	R
d. Consults with others to get ideas for questions to be asked		E	E	M/R	R
e. Determines what additional general & specific information is needed	E	E	E	M/R	R
f. Clarifies spoken messages using props (objects, pictures, charts, diagrams...)	E	E	E	M/R	R
g. Connects experiences, feelings & ideas with others to establish rapport	E	E	E	M/R	R
h. Conveys messages non-verbally (gestures, facial expressions, body language...)		E	E	M/R	R
i. Questions an assignment's requirements in terms of personal interest		E	E	M/R	R
j. Questions the limitations of an assignment		E	E	M/R	R
k. Determines if the extent of student's knowledge on topic has been reached		E	E	M/R	R
l. Determines if the extent of teachers' knowledge on the topic has been reached		E	E	M/R	R

1D. Asking Technology Skill Sets

1. Computer Software Skill Set

a. Uses word processor for formulating questions		E	E	E	M/R
b. Uses Internet search engines to do research in preparation for formulating questions		E	E	E	M/R
c. Uses idea & concept mapping programs for brainstorming questions (Inspiration, CMap, LifeMap, Model-It...)			E	E	M/R
d. Uses CD ROM to do research in preparation for formulating questions		E	E	E	M/R
e. Considers other useful software tools for forming questions		E	E	E	M/R

2. Computer Hardware Skill Set

a. Uses computer for word processing, or idea and concept mapping (see 2B.1 & 2)		E	E	E	M/R
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1E. Asking Review Skill Sets

1. Student Process Review Skill Set

a. Reviews process by comparing progress to date with initial goals	E	M	R		
b. Revisits original topic & develops follow-up questions			E	M	R
c. Uses existing data to further clarify the boundaries of the topic			E	M	R
d. Revisits original instructions to determine if scope of task was fully explored		E	M	R	

2. Collaborative Process Review Skill Set

a. Works with others (peers, teacher, family) to review process by comparing progress to date with initial goals	E	M	R		
b. Works with others to revisit original topic & develops follow-up questions			E	M	R
c. Works with others in using existing data to further clarify boundaries of topic			E	M	R
d. Works with others to revisit original instructions to determine if scope of task was fully explored		E	M	R	
e. Uses self-assessment & collaborative Skill Set to determine if topic is practical		E	E	M	R

3. Teacher Process Review

a. Review of teacher's Asking goals and results					
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Stage 2: Accessing

Skills for Accessing Data from the Internet & Other Sources

In the *Accessing* stage, students engage in the data-collection component of the NetSavvy process. Now that the assignment is understood, the initial questions have been defined, and the research boundaries narrowed, the time for considering possible data sources and how to access them is at hand.

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2A. Accessing Essential Skill Sets

P I M H +

	P	I	M	H	+
1. Skill Set for Using Hardware					
a. Computer skills for word processing, Internet browsing, email, & recording, arranging & modifying data	E	E	E	E/M	R
b. Data management skills for storing & backing-up data & software to storage devices (disks, hard drive, Zip-drive, optical drive...)	E	E	E	E/M	R
c. CD ROM search skills for accessing data	E	E	M	R	
d. Multi-media computer skills for accessing, viewing & manipulating pictures, animation & motion video		E	E	E/M	R
e. Network skills for accessing data from local area networks (LANs)	E	E	M	R	
f. Modem skills for configuring the modem & connecting to the Internet		E	E	E/M	R
g. Scanner skills for scanning photographs & graphics		E	E	M	R
h. VCR skills for recording & playing		E	M	R	
i. Photographic camera (film, digital) operation skills	E	E	E/M	M	R
j. Tape recorder skills for recording & playing	E	E	M	R	
k. Video camera (VHS, digital) skills for recording & playing	E	E	M	M/R	
2. Skill Set for Using Computer Software (see Fig. 6.2)					
a. Netiquette awareness for appropriate behavior when using the Internet		E	E	M/R	R
b. Internet browser skills for navigating the Internet, entering & using URLs, & using hypertext links to locate & download data		E	E	M/R	R
c. Email skills for opening, reading, composing, spell-checking, attaching documents & sending messages		E	E	M/R	R
d. Listserv skills for participating in group discussions by email		E	E	E/M	R
e. Word processing skills for entering text, spell-checking, grammar-checking, using fonts & styles	E	E	E/M	R	
f. Internet search engine skills for reading search tips: simple searching, Boolean searching, searching by date range, domain, geography, language		E	E	M	R
g. Skills for using multi-search Internet engines		E	E	M	R
h. Skills for using on-line databases (setting up the account, signing on, signing off, simple searching, Boolean searching, searching by date range, domain, geography, language...)			E	E	M
i. Database program skills for organizing & recording data	E	E	E	M	R
j. Spreadsheet program skills for arranging & recording data	E	E	E	M	R
k. Skills for accessing software/hardware help files & tutorials		E	M/R		
l. Scanning skills for digitizing photos & graphics		E	E	M	R
m. Voice recognition software skills for recording the spoken word			E	E/M	R
n. Optical Character Recognition (OCR) program skills for digitizing text		E	E/M	R	

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3. Recording Data & Creating a Bibliography

P I M H +

a. Identifies appropriate tools for recording data (pen, photocopier, scanner, tape recorder, video camera, computer files...)	E	E	E	M	R
b. Identifies what should be recorded (main ideas, key statements, quotes...)		E	E	M	R
c. Organizes records (paper or electronic) of data obtained		E	E	M	R
d. Identifies bibliographic formats (APA, MLA, Internet...)		E	E	M	R
e. Creates a bibliography		E	E	M	R
f. Understands related technology skills (creating headers, footers, page breaks, footnotes...)		E	E	M	R

2B. Accessing Prerequisite Skill Sets

1. General Workstation Skill Set

a. Adjusts chair for comfort	E	M/R			
b. Ensures that the keyboard is at the proper height	E	M/R			
c. Adjusts the image size for comfortable viewing (see under the “View” menu)	E	M/R			
d. Adjusts the monitor controls for contrast, brightness, resolution & color depth	E	M/R			
e. Creates working space for materials & note-taking	E	M	R		

2. General Computer Skill Set

a. Has basic working knowledge of computers (start, shut down, use mouse, open file, create new file, save file to: disk, hard drive & network	E	M	R		
b. Keyboards at rate at least equal to handwriting rate		E	M/R		
c. Has working knowledge of word processing software commands (enter, delete, insert, cut, copy & paste, save, save as, find & replace...)		E	M	R	

3. General Internet Skill Set

a. Has basic working knowledge of email software commands (retrieve, open, save, reply, forward, queue, delete...)		E	M	R	
b. Understands basic steps of composing, addressing & sending email messages		E	M	R	
c. Has basic working knowledge of Internet browser software (open browser, enter URL, use tool bar, hyperlinks & bookmarks ...)		E	M	R	
d. Understands basic steps of using a search engine (identifies & enters keywords, uses hyperlinks, saves sites using bookmarks...)		E	M	R	
e. Treats equipment & disks with respect	E	M	R		
f. Respects privacy of other students’ files	E	M	R		
g. Understands & respects copyright issues	E	M	R		

4. Internet On-line Skill Set

a. Demonstrates appropriate on-line behavior (is polite, uses appropriate language, does not reveal or request personal information, or act in a disruptive manner		E	M	R	
b. Respects intellectual property of other users & information providers		E	M	R	
c. Communicates with teacher regarding concerns or questionable activities		E	M	R	

5. General Reading Skill Set

a. Addresses barriers to effective reading (eyesight, learning problems, lighting...)	E	E	E	M	R
b. Demonstrates word skills (vocabulary, word attack...)	E	E	E	M	R
c. Reads for different purposes (comprehension, appreciation, research...)		E	E	M	R
e. Reads variety of texts (nonfiction, novels, textbooks, newspapers, magazines...)		E	E	M	R

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6. Technical Reading Skill Set

	P	I	M	H	+
a. Differentiates between reading technical & non-technical data		E	E	M	R
b. Understands the difference in the language used in technical & non-technical documents		E	E	M/R	
c. Understands the difference between the objectives of technical & non-technical documents		E	E	M	R
d. Understands directional words (left, right, up, down, in, out...)	E	E	M	R	
e. Understands instructional words (locate, find, summarize...)	E	E	M	R	
f. Understands action words (turn, open, close, push...)	E	E	M	R	
g. Is familiar with technical terms (card, cable, controller, disk...)		E	E	M	R
h. Varies reading rate appropriate to the task (reading word by word for information rather than skimming)		E	E	E	M/R
i. Varies reading rate appropriate to complexity of text		E	E	E	M/R
j. Understands the necessity of reading technical material sequentially		E	M	R	
k. Interprets technical illustrations (diagrams, maps, charts, graphs...)		E	E	M/R	
l. Visualizes tasks by converting words to pictures, sounds & actions		E	E	E	M/R
m. Visualizes end product or outcome		E	E	E/M	R
n. Identifies & resolves what hasn't been understood		E	M	R	
o. Obtains outside help when necessary		E	M	R	

2C. Accessing Techniques Skill Sets

1. Starting Point Skill Set

a. Lists likely data sources		E	E	E/M	R
b. Considers sources that provide alternate points of view		E	E	E	M/R
c. Employs brainstorming, clustering & webbing techniques independently & cooperatively to identify key words		E	E	E/M	R
d. Creates list of key words to use in scanning indexes & tables of contents for material relevant to topic		E	E	E/M	R

2. Considering Possible Internet Indexing Systems

a. Internet search engines (AltaVista, Excite, Fast, Infoseek, Inktomi Northern Light, WebCrawler...) for keyword searches		E	E	M	R
b. Internet multiseach engines (Dogpile, Metacrawler, Go2Net, Sherlock ...)		E	E	M	R
c. Internet Directories (Yahoo, Snap, Open Directory, Lycos...)					
d. Question answering search engines (AskJeeves, Disney Internet Guide, Yahoooligans...)		E	E	E/M	R
e. Internet databases (ERIC, DIALOG, Amazon.com, Yellowpages.com...)			E	E/M	R
f. Search engines needed to access audio files (RealPlayer...)		E	E	M	R
g. Search programs needed to access video files (RealPlayer...)		E	E	M	R
h. Considers using on-line services (AOL, CompuServe, MSN...)		E	E	M	R

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3. Considering Possible Data Sources by Location**P I M H +**

a. Classroom resources (teacher, other students, text books, Internet...)		E	E	M/R	
b. School resources (library, Internet, other teachers, district resource center...)		E	E	M/R	
c. Home resources (books, computer, Internet, parents, relatives, neighbors...)	E	E	E	M/R	
d. Community resources (libraries, Internet sites, museums, science centers, archives, galleries, local government, societies, businesses...)			E	E	M/R
e. State resources (libraries, Internet sites, museums, science centers, archives, galleries, state government, societies, businesses...)			E	E	M/R
f. Federal resources (libraries, Internet sites, museums, archives, government, businesses...)			E	E	M/R
g. International resources (foreign governments, United Nations, businesses, cultural, historical...)			E	E	M/R

4. Considering Possible Tools for Locating People (Primary Sources) on the Internet

a. Email programs (Eudora, Messenger, Outlook Express...)		E	M	R	
b. Listservs (discussion groups by email).		E	E	M/R	
c. Internet search engines (AltaVista, Excite, Infoseek, Lycos, Northern Light, Yahoo...)		E	E	M	R
d. Newsgroups		E	E	M	R

5. Considering Possible Tools for Interacting with People in Real Time Over the Internet

a. Discussion groups (real time) e.g. microsoft.public.win2000.*,		E	E	M	R
b. Chat rooms (e.g. Collecting-Sports, FoodTalk, ePoet, Music-Jazz...)		E	E	M	R
c. MUDs - Multi User Domains- (TrekMUSE...)			E	M	R
d. MOOs - (Multi User Object Oriented Room - (LambdaMOO...)				E	M/R
e. MUSHs - (Multi User Shared Hallucination)				E	M/R
f. Avatars				E	M/R
g. Video teleconferencing				E	M/R

6. Considering Accessing Peoples' Original Information (Primary Sources) Through the Internet

a. Personal websites (autobiographies, diaries, speeches, eyewitness accounts, letters, interviews, columns, commentaries, photos, results of original research...)		E	E	M	R
b. Statistics (census data, bureaucratic records...)		E	E	E	M/R

7. Considering Accessing Peoples' Interpreted Information (Secondary, Tertiary Sources) Through the Internet

a. Reference sites (atlases, dictionaries, encyclopedias, manuals, handbooks, almanacs...)		E	E	M	R
b. Periodical sites (newspapers, magazines, yearbooks, journals...)		E	E	M	R
c. Virtual Museums & Archives (toymuseum.com, watt.emf.net/, dreamscape.com/frankvad/tours.html...)		E	E	M	R
d. Virtual Libraries (www.gutenberg.org., vlib.org ...)		E	E	M	R
e. Government Sources (census, bureaucratic records...)		E	E	E/M	R
f. Graphics (clip art, graphics, photos...)		E	E	M	R
g. 3D Graphics (Cult 3D, Live Picture Viewer...)		E	E	M	R

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7. Considering Accessing Peoples' Interpreted Information

P I M H +

(Secondary, Tertiary Sources) Through the Internet (continued)

h. Animation clips (Flash Player...)		E	E	M	R
i. Video clips (from the Internet, video camera, VCR, TV...)		E	E	M	R
j. Audio clips (MP3 music, speeches, tape recordings...)		E	E	M	R
k. Radio (RealPlayer, Media Player, Quicktime...)		E	E	M	R
l. Television (RealPlayer, Media Player, Quicktime...)		E	E	M	R

8. Considering Traditional Sources

a. Paper-based sources (encyclopedias, reference books, non-fiction, fiction, biography, technical books...)					
b. Other (microfiche, film, slides, recordings...)					

9. Considering Contemplative Thinking

a. Drawing on your own thought processes to access creative thinking, on the topic (original thought, opinion, intuition, theory)					
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2D. Accessing Technology Skill Sets

1. Considering Other Software for Accessing Data

a. Word processor to record data (Word, Works, AppleWorks, WordPerfect...)		E	E	E/M	R
b. Database program to organize data (Access, Approach, Filemaker Pro...)		E	E	E/M	R
c. Spreadsheet program to arrange data (Excel, Works, QuattroPro...)		E	E	E/M	R
d. Graphics programs for using a scanner to digitally scan in photos, graphics (Photoshop, PhotoDeluxe, PhotoImpact...)		E	E	E/M	R
e. Graphics programs to digitally modify photos, graphics (Photoshop, PhotoDeluxe, PhotoImpact...)		E	E	E/M	R
f. Optical Character Recognition (OCR) program to scan text (OmniPage, Textbridge Pro...)		E	E	E/M	R
g. Voice Recognition software to record speech (NaturallySpeaking, ViaVoice, VoiceXpress...)			E	E/M	R

2. Considering Possible Hardware for Accessing Data

a. Internet Service Provider (ISP) for accessing the Internet (MSN, AOL...)		E	E	M	R
b. Basic computer (keyboard, mouse, monitor...) for accessing the Internet & storing data	E	E	E	M	R
c. Inexpensive Internet personal access devices (e.g. WebTV)	E	E	M	M	R
d. Back-up storage device (hard drive, Zip-drive, read/write CD drive...) for safe storage of software & recorded data		E	E	M	R
e. CD ROM for accessing pre-recorded data or music	E	E	M	R	
f. Multi-media computer for viewing & recording video		E	E	M	R
g. Local area network for accessing local computer data & software	E	E	M	R	
h. Modem for accessing the Internet		E	M	M/R	
i. Scanner for recording photos & graphics		E	M	M/R	
j. VCR for viewing video tapes & recording TV programs & video tapes	E	E	M	R	
k. Photographic camera (film, digital) for recording photographs	E	E	E/M	R	
l. Tape recorder for recording & playing interviews & sounds	E	M/R			
m. Video camera (VHS, digital) for recording interviews & other live action	E	E	M	M/R	

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2E. Accessing Review Skill Sets

P I M H +

	P	I	M	H	+
1. Student Process Review Skill Set					
a. Reviews process by comparing progress to date with initial goals	E	M	R		
b. Considers relevance of accessed resources in relation to the original topic			E	M	R
c. Reviews the match between the data gathered, the teacher’s purpose & the student’s purpose			E	M	R
d. Determines whether sources are properly documented (bibliography, footnotes, credits, attributions, quotes...)			E	M	R
e. Revisits original instructions to determine if scope of task was fully explored		E	M	R	
2. Collaborative Process Review Skill Set					
a. Works with others (peers, teacher, family) to review process by comparing progress to date with initial goals	E	M	R		
b. Works with others to revisit original topic & develops follow-up questions			E	M	R
c. Works with others in using existing data to further clarify boundaries of topic			E	M	R
d. Works with others to revisit original instructions to determine if scope of task was fully explored		E	M	R	
e. Uses self-assessment & collaborative Skill Set to determine if topic is practical		E	E	M	R
3. Teacher Process Review					
a. Review of teacher’s <i>Accessing</i> goals and results					

Stage 3: Analyzing

Skills for Analyzing Data from the Internet & Other Sources

Analyzing is the organizing and assembling stage of the NetSavvy process. As the data is checked for relevance to the topic, accuracy and authenticity, it begins the process of being turned from data into usable information. Students determine if the assembled data is sufficient to answer the questions, or whether more research is necessary. Documentation of data is a vital part of the Analyzing stage.

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3A. Analyzing Essential Skill Sets

P I M H +

	P	I	M	H	+
1. General Analyzing Skill Set					
a. Selects materials appropriate for reading & listening level of assignment			E	E	M
b. Recognizes suitability of data for own level of understanding		E	E	E/M	R
c. Identifies intended audience of data		E	E	M	R
d. Identifies whether sufficient detail has been provided			E	E	M
e. Considers different perspectives provided by different data sources				E	M
f. Considers sources that provide alternate points of view		E	E	M	R
g. Recognizes digressions from the main idea of a subject			E	E	M
h. Selects key sentences to use in note taking & quotations		E	E	M	R
i. Shares data with others to establish whether the information need has been met		E	E	E/M	R
2. Critical Analyzing Skill Set					
a. Recognizes digressions from the main idea of a subject			E	E	M
b. Distinguishes between fact & fiction (misconceptions, lies, deceit...)	E	E	E	M/R	
c. Distinguishes between fact & opinion		E	E	M/R	
d. Distinguishes between objective & subjective opinion			E	E	M/R
e. Distinguishes between fact & theory				E	M
f. Distinguishes between hypothesis & evidence			E	E	M
g. Distinguishes between hypothesis & generalization			E	M	R
h. Identifies unstated assumptions			E	E	M/R
i. Recognizes stereotyping			E	E	M/R
j. Identifies ambiguous arguments or claims			E	M	R
k. Recognizes the effect of placing contrasting text & images side-by-side		E	E	M	R
l. Interprets symbolism or metaphors contained in data			E	E	M/R
3. Media Analyzing Skill Set					
a. Identifies different media products (commercials, journals, political publications, informercials, advertising, promotional materials...)		E	E	E/M	R
b. Analyzes underlying meaning in commercial public media (newspapers, magazines, TV, radio, the Internet...)			E	E/M	R
c. Understands purpose of media products (selling products, influencing opinion, informing the public...)		E	E	E/M	R
d. Analyzes visual elements of media products (color, composition, graphical design, symbolism...)		E	E	E/M	R

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3. Media Analyzing Skill Set (continued)

	P	I	M	H	+
e. Analyzes sound elements (mood, emotion, tone...)		E	E	E/M	R
f. Analyzes print elements (font, bolding, italics, color, style...)		E	E	E/M	R
g. Interprets how various aspects of a media product combine to communicate		E	E	E/M	R
h. Analyzes how message is influenced by the media format used		E	E	E/M	R
i. Identifies best format for the topic (print, slide, film, sound...)		E	E	E/M	R
4. General Documenting Skill Set					
a. Determines proper documentation (bibliography, credits, quotations...)			E	M	R
b. Checks dates data was created, published or revised & considers its value in light of its age			E	M	R
c. Determines if the conclusions are justified by the data presented			E	E	M
d. Identifies ambiguous claims or arguments			E	E	M
e. Identifies digressions from the main idea of the subject			E	E	M
f. Determines if the author presents original material (or compiles other sources)			E	M	R
g. Decides the significance or importance of a text to own experiences & values			E	E/M	R
5. Documenting Skill Set – Internet (see Fig. 7.2 & 7.3)					
a. Checks dates data was created, posted or revised & considers its value in light of its age		E	E	M	R
b. Checks that a qualified writer takes responsibility for the material & is accessible (email address, personal web page or through an Internet search engine) if there is a need to query the data		E	E	E/M	R
c. Checks a person's signature file (email, newsgroup, mailing list) to consider their qualifications in relation to the topic at hand		E	E	E/M	R
d. Checks writer's intent in a newsgroup or mail list by using the carbon copy feature to determine the writer's intended audience		E	E	E/M	R
e. Evaluates currency, credibility, suitability & usability of on-line data		E	E	E	M/R
f. Is skeptical about face value of multimedia data (since the appearance of a publication is not necessarily relevant to the quality of its data)		E	E	E/M	R
g. Checks links in web site for comprehensiveness (links to Gopher, FTP sites...)		E	E	E/M	R
6. Critical Authenticating Skill Set					
a. Determines if data is skewed or manipulated through sources, viewpoint or time			E	E	M/R
b. Determines if experts in the field agree on the findings			E	E	M
c. Understands how geographical source of data may limit its application				E	M/R
d. Identifies hidden or underlying messages			E	E	M
e. Recognizes propaganda, politics, lies, half-truths, hype, myths & bandwagons			E	E	M
f. Identifies hidden agendas			E	E	M
g. Identifies digressions from the main idea of the subject			E	E	M
h. Determines if the work updates or substantiates knowledge on the subject			E	M	R
i. Determines a writer's values, assumptions & biases			E	M	R
j. Considers evidence by taking into account who made the observation, how it was made & under what conditions			E	M	R
k. Assesses the logical validity of an argument (an author's personal experience is generally not considered sufficient evidence)			E	E/M	R
l. Determines if conclusion of a deductive argument is implicit within its premises			E	E/M	R
m. Determines that the premises of an inductive argument are true & the conclusion logically follows			E	E/M	R

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3B. Analyzing Prerequisite Skill Sets

P I M H +

	P	I	M	H	+
1. General Thinking Skill Set					
a. Listens, observes & reads with a purpose	E	E	E/M	M	R
b. Identifies main ideas & supporting details	E	E	E/M	M	R
c. Reads to find answers to specific questions	E	E	M	R	
d. sifts to recover good data & reject bad data		E	E	E/M	R
e. Learns by sharing ideas with others	E	E	M	R	
f. Is aware of one's own political, cultural & moral values			E	E	M/R
2. Critical Thinking Skill Set					
a. Questions the clarity of the data		E	E	M	R
b. Questions the accuracy of the data		E	E	M	R
c. Questions the precision of the data		E	E	M	R
d. Questions the relevance of the data		E	E	M	R
e. Questions the superficiality of the data			E	E	M/R
f. Questions the breadth of the data			E	E	M/R
g. Questions the logic of the data			E	E	M/R

3C. Analyzing Techniques Skill Sets

1. Considering Methods for Analyzing Data

a. Diagrams for graphically representing data		E	E	M	R
b. Webs for showing the connections between data		E	E	M	R
c. Categories for organizing & arranging data	E	E	E	M	R
d. Outlines for summarizing data		E	E	M	R
e. Paraphrasing for restating data		E	M	R	
f. Sequencing for ordering data	E	E	M	R	
g. Note cards for sorting data	E	E	E	M	R
h. Databases for organizing & recording data		E	E	M	R
i. Spreadsheets for arranging & recording data		E	E	M	R

3D. Analyzing Technology Skill Sets

1. Considering Computer Software for Analyzing Data

a. Diagramming programs (Inspiration, Illustrator, Freehand, AppleWorks...)		E	E	M	R
b. Idea & Concept Mapping (Inspiration, CMap, LifeMap, Model-It...)		E	E	M	R
c. Outlining programs (Inspiration, AppleWorks, MSWord...)		E	E	M	R
d. Charting programs (Excel, AppleWorks...)		E	E	M	R
e. Note carding programs (Hyperstudio, QuickCard...)		E	E	M	R
f. Database programs (Access, FileMaker Pro, R:base...)		E	E	M	R
g. Spreadsheet programs (Excel, Lotus 1-2-3, AppleWorks, QuattroPro...)		E	E	M	R

2. Considering Computer Hardware for Analyzing Data

a. Uses computer for word processing, mapping, database...		E	E	E	M/R
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3E. ANALYZING Review Skill Sets

P I M H +

	P	I	M	H	+
1. Student Process Review Skill Set					
a. Reviews process by comparing progress to date with initial goals	E	M	R		
b. Reviews the match between the data gathered, the teacher’s purpose & the student’s purpose			E	M	R
c. Revisits original instructions to determine if scope of task was fully explored		E	M	R	
2. Collaborative Process Skill Set					
a. Works with others (peers, teacher, family) to review process by comparing progress to date with initial goals	E	M	R		
b. Works with others in using existing data to further clarify boundaries of topic			E	M	R
c. Works with others to revisit original instructions to determine if scope of task was fully explored		E	M	R	
d. Uses self-assessment & collaborative Skill Set to determine if topic is practical		E	E	M	R
3. Teacher Process Review					
a. Review of teacher’s <i>Analyzing</i> goals and results					

Stage 4: Applying

Skills for Applying Information from the Internet & Other Sources to Create Presentations & Products

After the material has been organized and analyzed, it must be presented in a finished form or product. For brevity in this Skills Framework, we apply the term presentation to all student outcomes. During the *Applying* stage, presentations are created in a variety of ways using combinations of the four flavors of information – text, images, video, and sound. As the presentation is developed, it completes the process of turning data into information and usable knowledge.

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4A. Applying Essential Skill Sets

P I M H +

	P	I	M	H	+
1. Skill Set for Preparation of Material from Several Sources					
a. Creates a word bank (directional words, instructional words, action words, naming words...)		E	E	M	R
b. Creates an outline (list, mind map, visual web, storyboard...) to describe the sequential stages of the presentation		E	E	E	M/R
c. Edits for errors, omissions & lack of clarity		E	E	M	R
d. Checks the instructional sequence for the desired result & makes the necessary modifications		E	E	M	R
e. Utilizes peer editing techniques to ensure the instructional sequence produces the desired result		E	E	M	R
2. General Presentation Skill Set					
a. Summarizes the main ideas		E	M	R	
b. Identifies relationships & patterns		E	E	M	R
c. Sorts information into categories		E	E	M	R
d. Arranges information in sequence		E	E	M	R
e. Arranges information within categories		E	E	M	R
f. Arranges categories in a logical order		E	E	M	R
g. Makes connections & draws inferences		E	E	M	R
h. Examines & integrates alternative points of view		E	E	E	M/R
i. Makes generalizations		E	E	E	M/R
j. Concludes with a summary		E	E	M	R
3. Graphics Presentation Skill Set					
a. Organizes material according to presentation need (sequentially, randomly, in groups, linking pieces...)		E	E	E	M/R
b. Labels material (titles, comments, credits...)	E	E	E	M	R
c. Chooses style, materials, colors, textures		E	E	E	M/R
d. Recognizes the effect of color & style on mood & content		E	E	E	M/R

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4. Writing Presentation Skill Set**P I M H +**

	P	I	M	H	+
a. Converts the outlined steps of the planning stage into concise, grammatically correct sentences		E	E	M	R
b. Creates illustrations & captions for clarification of the text (diagrams, maps, charts, graphs...)		E	E	M	R
c. Forms sentences into paragraphs that have main ideas & detail sentences		E	E	M	R
d. Writes clear transitions between ideas, sentences, paragraphs & drawings		E	E	M	R
e. Determines the reading level of the intended audience & edits accordingly for readability		E	E	E	M/R
f. Proofreads the text for grammatical structure, capitalization, spelling & punctuation		E	E	M	R
g. Proofreads to ensure illustrations & captions correlate with the text		E	E	M	R
5. Technical Writing Presentation Skill Set					
a. Determines the reading level of the intended audience & writes accordingly for readability		E	E	E	R
b. Converts the outlined steps of the planning stage into concise, grammatically correct technical instructions		E	E	M	R
c. Creates technical illustrations & captions for clarification of the text (diagrams, maps, charts, graphs...)		E	E	M	R
d. Forms sentences into paragraphs that have main ideas & detailed instructions using technical words		E	E	M	R
e. Uses directional words (left, right, up, down, in, out...)		E	E	M	R
f. Uses instructional words (locate, find, summarize...)		E	E	M	R
g. Uses action words (turn, open, close, push...)		E	E	M	R
h. Uses naming words (wire, cable, button, disk...)		E	E	M	R
i. Shows the interrelationships – the integrated system formed by the parts		E	E	E	M/R
j. Writes clear transitions between ideas, sentences, paragraphs & drawings		E	E	M	R
k. Proofreads the text for technical accuracy, grammatical structure, capitalization, spelling & punctuation		E	E	M	R
l. Proofreads to ensure illustrations & captions correlate with the text		E	E	M	R
m. Proofreads to ensure that technical illustrations correlate with written instructions		E	E	M	R
6. Oral Presentation Skill Set					
a. Checks the acoustics or need for a microphone		E	E	M	R
b. Considers using illustrations, props or gestures		E	E	M	R
c. Speaks using appropriate voice, pitch & volume		E	E	M	R
d. Speaks with proper enunciation		E	M	R	
e. Speaks without word substitutions or repetition		E	E	M	R
f. Speaks with phrasing & expression that reflects punctuation		E	M	R	
7. Debating Skill Set					
a. Presents constructive speech, rebuttal speech & cross-examination,		E	E	E	M/R
b. Makes complete source citations of evidence (author's name & qualifications, publication title, complete date, & page number)		E	E	M	R
c. Challenges fabrication & distortion		E	E	E	M/R
d. Understands & obeys the set rules of debating		E	E	E	M/R

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8. Audio Presentation Skill Set

P I M H +

a. Understands basic principles of audio production needed to create effective presentations (dubbing, editing, special effects, music, narration...)		E	E	E	M/R
b. Understands the point of view of the audience & ensures a comfortable physical environment for listening		E	E	M	R

9. Video Presentation Skill Set

a. Understands basic principles of video production needed to create effective presentations (storyboarding, framing, zooming, panning, narration, music...)		E	E	E	M/R
b. Understands the point of view of the audience & ensures a comfortable physical & viewing environment		E	E	M	R

10. Multimedia Presentation Skill Set

a. Understands basic principles of media production needed to create effective presentations (composition, design, editing, color, music...)		E	E	E	M/R
b. Understands the point of view of the audience & ensures a comfortable physical & visual environment for viewing		E	E	M	R

11. Internet Publishing Presentation Skill Set

a. Netiquette Skill Set for appropriate use of the Internet		E	E	M	R
b. Email Skill Set for preparing postings to listservs & newsgroups		E	E	M	R
c. Multimedia presentation Skill Set for creating presentations for web sites (personal home page, educational site...)		E	E	M	R

12. General – Finalizing the Preparation of a Presentation

a. Reviews to delete repetitive & irrelevant information.		E	E	M	R
b. Reviews to determine if there is too much or not enough information		E	E	E	M/R
c. Checks vocabulary, sentence structure & mechanics		E	E	M	R
d. Checks if the findings support or refute the original ideas contained in the topic		E	E	E	M/R
e. Reexamines information for relevance to intended focus & format		E	E	E	M/R
f. Finds new examples, explains events & actions to further emphasize the point		E	E	E	M/R
g. Considers new conclusions based on accumulated information		E	E	E	M/R
h. Finalizes the bibliography & footnotes		E	E	M	R
i. Does final edit or rehearsal of presentation		E	M	R	

4B. Applying Prerequisite Skill Sets (see Fig. 8.2)

1. Basic Skill Set for Preparation of a Presentation

a. Can identify basic needs (materials, equipment, space, time & personnel)		E	E	M	R
b. Can identify needed outside help & determine how to get it		E	E	M	R
c. Can identify other resources needed		E	E	M	R
d. Can identify the best learning style in which a task can be presented (visual, auditory, tactile, written work) & convert it into other learning styles if necessary			E	E	M/R
e. Can define potential problems in completing an assignment & indicate where opportunities exist for alternate solutions		E	E	M	R

2. General Presentation Skill Set Using Graphics

a. Can present materials in graphic form (drawings, charts, graphs, photos, art...)		E	E	M	R
b. Can operate necessary equipment for creating graphics for use in a presentation		E	M	R	

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3. General Presentation Skill Set Using Writing

P I M H +

a. Can address barriers to effective writing (materials, writing environment, personal physical problems, learning disabilities...)			E	M	R
b. Can determine format details (type of paper, cover, fonts, style...)		E	M	R	
c. Can restate, summarize & paraphrase information		E	E	M	R
d. Can locate answers to questions from resources		E	E	M	R
e. Can verify information		E	E	M	R
f. Can consider including other knowledgeable opinions		E	E	M	R
g. Can document information (bibliography, footnotes, credits, & quotations)		E	E	M	R

4. General Technical Writing Presentation Skill Set

a. Can differentiate between, & use technical & non-technical writing formats		E	E	M	R
b. Can compare & contrast the language used in technical & non-technical writing		E	E	M	R
c. Can compare & contrast the objective of technical & non-technical writing		E	E	M	R

5. General Audio Presentation Skill Set

a. Can operate tape player effectively (record, dub, edit, play...)	E	E	M	M/R	
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6. General Video Presentation Skill Set

a. Can operate VCR & monitor effectively (record, dub, edit, play...)	E	E	M	M/R	
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7. General Multimedia Presentation Skill Set

a. Can use word processing program	E	E	E	M	R
b. Can use graphics software to enhance presentations		E	E	M	M/R
c. Can prepare charts, graphs or tables		E	E	M	M/R
d. Can incorporate computer-generated graphics into presentation		E	E	M	M/R
e. Can incorporate audio into presentation		E	E	M	M/R
f. Can incorporate video into presentation		E	E	M	M/R

8. General - Consults with a Teacher or Peers for:

a. Edits (reviewing information to delete repetitive & irrelevant information)		E	E	M	M/R
b. Proofs (checks for vocabulary, sentence structure & mechanics)		E	E	M	M/R
c. Checks for flow (coherence & mechanics)		E	E	M	M/R
d. Rehearsing the presentation		E	E	M	M/R
e. Ensuring extra effort is made to do a good job		E	E	M	M/R

4C. Applying Techniques Skill Sets (see Fig. 8.2)

1. General Considerations

a. Considers barriers to an effective presentation		E	E	E	M/R
b. Considers presentation formats in relation to topic (graphical, written, audio, video, multimedia...)		E	E	E	M/R
c. Considers presentation formats in relation to the Skill Set of the presenter		E	E	E	M/R
d. Considers presentation formats in relation to the needs of the intended audience		E	E	E	M/R

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2. Graphics**P I M H +**

a. Considers graphical components to be used as part of presentation (map, graph, picture, model, illustration, cartoon, time line...)		E	E	E	M/R
b. Considers a completely graphical presentation (slide show, art show, computer graphics...)		E	E	E	M/R
3. Writing					
a. Formal writing (report, essay, article...)		E	E	E	M/R
b. Personal writing (journal entry, short story, letter, poem...)	E	E	E	E	M/R
4. Technical Writing					
a. Technical report (science project, psychological or sociological study...)		E	E	E	M/R
b. Computer programming (set of programming instructions, small program.)		E	E	E	M/R
c. Instructional guide (set of technical instructions, documentation, manual...)		E	E	E	M/R
5. Oral Presentation					
a. Written speech		E	E	M	R
b. Speech from notes		E	E	M	R
c. Speech without notes		E	E	E	M/R
d. Interview (with student, family, community member...)		E	E	E	M/R
e. Dramatic presentation (play, re-enactment, role playing...)		E	E	M	R
f. Literary presentation (poetry reading, literary selection...)		E	E	M	R
6. Debate					
a. One-on-one		E	E	M	R
b. Group		E	E	M	R
7. Audio Presentation					
a. Voice recording (interview, speech, report, story...)	E	E	E	M	R
b. Musical recording (singing, musical instrument...)	E	E	M	R	
8. Video Presentation					
a. Video recording (interview, speech, report, story, musical presentation...)	E	E	E	M	R
b. Animation (cartoon, claymation, digital...)	E	E	E	M	R
9. Multimedia Presentation					
a. Computer presentation (live, interactive, viewer driven...)		E	E	M	R
b. Combinations of audio, video & graphics (tape recorder, video camera, VCR, still photography, graphical images...)		E	E	M	R
10. Internet Publishing					
a. Web site (personal home page, educational site, commercial site...)		E	E	E	M/R
b. Email (person-to-person, listserv & newsgroup postings...)		E	E	M	R

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4D. Applying Technology Skill Sets (see Fig. 8.2)

P I M H +

	P	I	M	H	+
1. Using Hardware					
a. Multi-media computer		E	E	E	M/R
b. VCR	E	E	M	M/R	
c. Video editing equipment		E	E	M	M/R
d. Tape player	E	E	M	M/R	
e. Audio editing equipment		E	E	E	M/R
f. Photocopier	E	E	E	M/R	
2. Using Computer Software					
a. Drawing & graphing programs (Corel Draw, Illustrator, Freehand, Excel...)		E	E	M	R
b. Word processing programs (Word, WordPerfect...)		E	E	E	M/R
c. Databases to present information (Lotus Notes, FileMaker, AppleWorks...)		E	E	E	M/R
d. Sound editing software (Premiere, Avid Cinema, Director...)		E	E	E	M/R
e. Video editing software (Premiere, Avid Cinema, Director...)		E	E	E	M/R
f. Multimedia presentation programs (Premiere, PowerPoint, Hyperstudio, Kai's Power Show, MovieWorks, Avid Cinema, Director...)		E	E	E	M/R
g. Publishing programs (PageMaker, QuarkXPress...)		E	E	E	M/R
h. Internet publishing programs (PageMill, Acrobat, HomePage...)		E	E	E	M/R
4E. Applying Reviewing Skill Sets					
1. Student Self-Assessment Questionnaire					
a. How did you feel after completing your presentation?		E	M	R	
b. How did your intended audience respond? (teacher, peers, family...)		E	M	R	
c. What advice did people offer?		E	M	R	
2. Collaborative Process Review Skill Set					
a. Works with others (peers, teacher, family) to review process by comparing progress to date with initial goals	E	M	R		
b. Works with others to revisit original topic & develops follow-up questions			E	M	R
c. Works with others in using existing data to further clarify boundaries of topic			E	M	R
d. Works with others to revisit original instructions to determine if scope of task was fully explored		E	M	R	
e. Uses self-assessment & collaborative Skill Set to determine if topic is practical		E	E	M	R
3. Teacher Process Review					
a. Review of teacher's <i>Applying</i> goals and results					

Stage 5: Assessing

Skills for Assessing the Presentation & the Process

Assessing is the final stage of the NetSavvy process. It operates at two levels. One level focuses on assessing the presentation that has been developed by the student. The other assesses the process that the teacher and student have undergone in completing the project. Assessment of both the presentation and process by the student, the teacher and others is critical to the learning experience. Assessment confirms that learning has occurred, while allowing students to make connections to previous experiences, as well as laying the groundwork for dealing with future information problems.

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5A. Assessing Essential Skills (see Fig. 9.2)

P I M H +

	P	I	M	H	+
1. Presentation Self-Assessment Questionnaire					
a. What were my goals?		E	E	E	M/R
b. Were my goals achieved?		E	E	E	M/R
c. What knowledge have I gained?		E	E	E	M/R
d. What Skill Set have I acquired?		E	E	E	M/R
e. What did others think of my work?		E	E	E	M/R
f. What impact did my work have?		E	E	E	M/R
g. How well does this project stand alone?		E	E	E	M/R
h. Which elements were well developed?		E	E	E	M/R
i. Which were partially developed?		E	E	E	M/R
j. Which weren't developed at all?		E	E	E	M/R
k. What should be done differently in the future?		E	E	E	M/R
l. What should be done better in the future?		E	E	E	M/R
m. What was the most difficult & why?		E	E	E	M/R
n. What was enjoyed the most & why?		E	E	E	M/R
o. What was enjoyed the least & why?		E	E	E	M/R
2. Technique Assessment Questionnaire					
a. What were the strong and weak parts of the <i>Asking</i> methods & tools?		E	E	E	M/R
b. What were the strong and weak parts of the <i>Accessing</i> methods & tools?		E	E	E	M/R
c. What indexing systems were most useful for <i>Accessing</i> data?		E	E	E	M/R
d. What were the strong and weak parts of the <i>Analyzing</i> methods & tools?		E	E	E	M/R
e. What were the strong and weak parts of the <i>Applying</i> methods & tools?		E	E	E	M/R
f. What were the strong and weak parts of the <i>Assessing</i> methods & tools?		E	E	E	M/R
3. Technology Assessment Questionnaire					
a. What equipment, hardware & software were best for accessing data?		E	E	E	M/R
b. What equipment, hardware & software were best for analyzing data?		E	E	E	M/R
c. What equipment, hardware & software were the best for applying the information?		E	E	E	M/R

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4. Process Assessment Questionnaire

P I M H +

a. How could the initial instructions (Asking) have been improved?		E	E	E	M/R
b. How could the researching (Accessing) of the data have been improved?		E	E	E	M/R
c. How could the processing (Analyzing) of the data have been improved?		E	E	E	M/R
d. How could the presentation (Applying) of the information have been improved?		E	E	E	M/R
e. How could your assessment (Assessing) of the data have been improved?		E	E	E	M/R

5. Transfer of Learning

a. To academic subjects (science, social studies, math)		E	E	E	M/R
b. To non-academic subjects (music, sports, playing a game, working in a business)		E	E	E	M/R
c. To personal life (career, hobby...)		E	E	E	M/R
d. Comparing outcome with other schools, districts, states, countries		E	E	E	M/R

5B. Assessing Prerequisite Skill Sets

1. Starting Point Skill Set

a. Appreciates the value of an outside point of view (the observations of others)		E	E	M	R
b. Appreciates the value of reflection & self-examination		E	E	M	R
c. Understands the nature of the learning process		E	E	E	M/R
d. Appreciates the value of the process as well as the outcome		E	E	E	M/R

5C. Assessing Technique Skill Sets (see Fig. 9.2)

1. Considering Presentation Assessing Methods

a. Teacher assessment (test, marks, verbal, checklist, notes...)		E	E	M	R
b. Student self-assessment (reflection, notes, checklist, questionnaire...)		E	E	M	R
c. Peer assessment (verbal, checklist, questionnaire...)		E	E	M	R
d. Collaborator assessment (verbal, checklist, questionnaire...)		E	E	M	R
e. Live audience assessment (verbal, notes...)		E	E	M	R
f. Internet audience assessment (email, number of hits, number of links...)		E	E	M	R
g. Student, parent or teacher assessment of the possible transfer of learning (to other work, to other school subjects, to self, to the future...)		E	E	M	R

2. Considering Process Assessing Methods

a. Teacher assessment of student process (test, marks, notes, verbal...)		E	E	M	R
b. Student assessment of student process (reflection, notes...)		E	E	M	R
c. Teacher assessment of teacher process (reflection, notes...)		E	E	M	R
d. Student assessment of teacher process (verbal, notes...)		E	E	M	R
e. Others assessment of teacher's & student's processes (verbal, notes...)		E	E	M	R
f. Assessment of the assessing tools used (verbal, checklist, questionnaire...)		E	E	M	R
g. Assessment of the possible transfer of learning (to other work, to other school subjects, to self, to the future...)		E	E	E	M/R

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5D. Assessing Technology Skill Sets (see Fig. 9.2)

P I M H +

1. Presentation Assessing Tools					
a. Written assessment of student (test, letter grade, percentage, teacher checklist, teacher notes, live audience questionnaire, Internet audience response...)		E	E	M	R
b. Verbal assessment of student (questions, comments or voting by teacher, collaborators, peers, audience...)		E	E	M	R
c. Contemplative assessment (student self-assessment)		E	E	M	R
2. Process Assessing Tools					
a. Written assessment (checklist, notes...)		E	E	M	R
b. Verbal assessment (questions, comments by teacher, collaborators, peers...)		E	E	M	R
c. Contemplative assessment (student self-assessment)		E	E	M	R
5E. Assessing Reviewing Skill Sets					
1. Teacher Review of Assessing					
a. Teacher review of student <i>Assessing</i> work					
b. Teacher review of <i>Assessing</i> goals and results					
2. Project Review by Others					
a. Student review of the overall project					
b. Other's review of the overall project					