Appendix H

Software

Software

Student laptops should include software chosen for its potential as a cognitive tool, enabling students to interpret and organize their knowledge. Such "tool-based" software promotes the development of higher order thinking in students. If students are to successfully construct their own learning experiences, they will need access to a complete set of tools, including the following:

Graphic Organizers. Graphic organizers and concept mapping visually represent concepts, providing an alternative method of organization for the learner. The use of symbolism to represent ideas enhances critical thinking skills. Benefits of graphic organizers in the classroom include brainstorming and story webbing, two critical steps in the writing process.

Presentation Tools. Students access, analyze, and frame information in an organized and logical manner and effectively communicate their findings to an audience of their peers through the use of presentation software. Graphic, audio and design enhancements provide visual stimulation to concepts presented, allowing students to create their own multimedia presentation.

Web Authoring. Web authoring software not only allows students the opportunity to publish their work on the World Wide Web but also provides lifeskills such as teamwork, collaborative learning and time management. Students in the Miami-Dade area worked in teams to develop websites for organizations in the community, providing a real world application to learning.

Digital Video. Digital video provides a new dimension to active learning. A video essay or live-action film is an opportunity for multi-dimensional learning. Students engage in a step-by-step process that includes visualizing, storyboarding, writing, organizing and creating. In digital video editing, students' critical thinking skills are enhanced. With the addition of music and audio editing software, customized sound can complement the project. Completed products provide not only alternative means of presentation but also alternative means of assessment.

Multimedia Authoring. Multimedia authoring refers to the presentation of material using more than one "natural sensory" medium. Multimedia presentations include two or more of the following; text, graphics, video, animation, and sound, and can use various means of delivery. Multimedia addresses a variety of learning styles, fosters digital literacy, and improves communication and comprehension skills. Drawing, painting and animation programs as part of multimedia authoring or as stand alone tools supplement any application and can be used as independent learning tools as well.

Word Processing. Word processing is no longer considered a computerized typewriter. This digital document creator provides more than just text. With the integration of graphics, charts, and images and the ability to create templates, a paperless classroom looms in the immediate future.

Spreadsheets. Spreadsheets allow students at all grade levels the opportunity to enter, compare, manipulate and interpret date. Not only do spreadsheets allow students mathematical manipulation of numbers, they also provide visual displays through the use of graphing. Text, too, can be manipulated and organized, providing valuable feedback for the learner. As data can be easily manipulated, outcomes appear immediately, providing the student with answers to the "what ifs?"

Database. By increasing productivity for both teachers and students, databases prove a valuable cognitive tool in and beyond the classroom. The use of databases to organize and classify information into major fields allows both students and teachers the ability to analyze, synthesize and evaluate critical information and to present that information in a meaningful format.

Internet Communication. The addition of a web browser, email, instant messaging and video conferencing software provides opportunities for world-wide communication. Through this global network, students have the means to communicate with a world of experts, providing learning opportunities that were once thought out of reach. Not only is world-wide communication possible, it is also timely, providing immediate feedback in some cases.

Calendar. Calendar software replaces cumbersome homework planners, agendas, logbooks and/or schedulers. Uniformity of such tools allows for organizational ease in the classroom and at home, producing more effective and efficient learners today and more productive workers in the future.

	Graphic Organizer	Presentation	Web Authoring	Photo Editing & Graphics	Digital Video Editing	Multimedia Authoring	E-mail & Conferencing	Word Processing	Spreadsheets	Databases
Information and Media Literacy Skills: Analyzing, accessing, managing, integrating, evaluating, and creating information in a variety of forms and media. Understanding the role of media in society.	●●●	●●	●●●	●●●	●●●	●●●	●●	●●	●●	●●
Communication Skills: Understanding, managing, and creating effective oral, written, and multimedia communication.	●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●	●●
Critical Thinking and Systems Thinking: Exercising sound reasoning in understanding and making complex choices; understanding the interconnections among systems.	●	●●●	●●●	●●	●●●	●●●	●●	●●	●●●	●●●
Problem Identification, Formulation, and Solution: The ability to frame, analyze, and solve problems.	●●●	●●	●●	●	●●	●●	●●	●●●	●●●	●●●
Creativity and Intellectual Curiosity: Developing, implementing, and communicating new ideas to others.	●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●	●●
Interpersonal and Collaborative skills: Demonstrating teamwork and leadership; adapting to various roles and responsibilities; and working productively with others.	●	●●	●●	●	●●	●●	●●●	●	●	●
Self-direction: Monitoring one's own understanding and learning needs, locating appropriate resources, and transferring learning from one domain to another.	●●●	●●	●●	●●	●●	●●	●●	●●	●●	●●
Accountability and Adaptability: Exercising personal responsibility and flexibility in personal, workplace and community contexts.	●	●	●●	●	●●	●●	●●	●	●	●
Social Responsibility: Acting responsibly with the interests of the larger community in mind; demonstrating ethical behavior in personal, workplace, and community contexts.	●	●●	●●	●	●●	●●	●●	●	●	●

KEY: ●●● = Software strongly supports this 21st century skill
●● = Software often supports this 21st century skill
● = Software can support this 21st century skill

Support of 21st century skills by various software types when used in a project-based classroom.