Grade Level Performance Indicator Progression

for Educational Technology

Office of Curriculum, Instruction and Student Support /
Instructional Services Branch

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GRADE LEVEL PERFORMANCE INDICATOR (GLPI) PROGRESSION FOR EDUCATIONAL TECHNOLOGY

The Grade Level Performance Indicators (GLPIs) for the Hawaii Content and Performance Standards were developed to further refine the HCPS benchmarks by providing statements for each grade that describe student work and performance that result from quality instruction. The *Grade Level Performance Indicator Progression* is organized by strands and content standards and display the progression of student performance from kindergarten through grade 12. For each benchmark, one or more grade level performance indicators are provided.

TYPES OF STANDARDS. The Grade Level Performance Indicator Progression identifies two types of standards, benchmarks, and indicators: essential and desirable.

Essential standards, benchmarks, and/or indicators are expectations for *all* students and *must* be addressed by schools in instruction. Students must be provided with learning opportunities to learn and attain the standards. **The essential standards, benchmarks, and/or indicators are indicated in boldface type in this document.**

Desirable standards, benchmarks, and/or indicators are standards that are expectations for *some* students. On the elementary level, the decision to address these standards is made collaboratively by school staff. The desirable standards are addressed in units or lessons as determined by teachers and student needs and interests. On the secondary level, schools make the decision to address desirable standards via their course offerings. Students choose to take elective courses based on their needs and interests. Desirable standards may be addressed in elective courses and in required courses as needs and interests indicate. *The desirable standards, benchmarks, and/or indicators are indicated by italic type in this document.*

TARGET AUDIENCES. The *Grade Level Performance Indicator (GLPI) Progression* is intended primarily for use by classroom teachers to design and plan standards-based instructional units, lessons, and/or activities. The GLPI Progression can also be used by school administrators and other school curriculum leaders. For example, the GLPI Progression can be used as reference points against which the school's curriculum can be mapped and compared. The GLPI Progression can also be used to communicate to parents what the school expects of their children.

INTENDED USE. The Grade Level Performance Indicators (GLPIs) should not be thought of as the only "indicators" of student performance and progress. While it is very likely that students are meeting the standards and benchmarks associated with that

indicator if they can demonstrate what is described in the indicator, multiple forms of assessments are needed to validate student knowledge, skills, and ability to meet the standards.

The *Grade Level Performance Indicator (GLPI) Progression* was developed to provide grade-by-grade definition to the Hawaii Content and Performance Standards. The GLPIs provide clarity to grade level and subject area teachers as to what is expected of students as they attain the HCPS benchmarks. They provide coherence and lessen the likelihood of gaps or unnecessary repetition in the curriculum. Most importantly, the GLPIs are meant to provide a level of consistency, standardization, and equity in curriculum, instruction, and assessment across all classrooms in each grade level across the state. The Instructional Guides, along with the other documents in the Standards Toolkit (Curriculum Framework, Grade Level Performance Indicator Progression, and Content Area Scope and Sequence) are to be used as a resource to enable teachers to focus on improving the quality of teaching and supporting increased student achievement of the Hawaii Content and Performance Standards.

TABLE OF CONTENTS

Grade Level Performance Indicator Progression for Educational Technology

Standard 1: **BASIC OPERATIONS AND CONCEPTS—Students demonstrate a sound understanding of the nature and operation of technology systems. Students are proficient in the use of technology.**

BENCHMARKS K-3	GRADE K PERFORMANCE INDICATORS	GRADE 1 PERFORMANCE INDICATORS	GRADE 2 PERFORMANCE INDICATORS	GRADE 3 PERFORMANCE INDICATORS
• **Use input devices for computers such as the mouse, keyboard, and microphone and various information storage devices such as disk drives.** • **Use a variety of media and technology resources for directed and independent learning activities and the creation of products.** • *Communicate appropriate terminology for technology tools and concepts.* • **Demonstrate proper care procedures for hardware and software devices.**	The student: • *Identifies computer-based technologies: keyboard and mouse, monitor, printer, hard drive, floppy drive, CD-ROM, digital camera, laptop.* • *Uses, carefully and appropriately, computer-based technologies: moves mouse, clicks mouse, double-clicks mouse, identifies letters on keyboard, identifies special keys (e.g., Esc), uses CD-ROM, accesses and exits software following correct procedure, prints files, turns computer on/off using proper startup and shutdown procedures.* • *Understands computer-based terms: cursor, software/hardware, Internet, menu, open/close program.* • *Recognizes image and motion-capture devices: digital still cameras and video cameras.* • *Identifies the computer as a machine that helps people work and play.*	The student: • **Manages files (save, open) on removable media (e.g., floppy disk) and a networked drive.** • **Understands computer-based terms: file, save file, edits file.** • **Demonstrates good control of a mouse, including: clicking and double-clicking, dragging and dropping, selecting objects or text.** • *Learns the various controls of a digital still or video camera that affect the quality of an image.* • **Uses pulldown menus in a program and knows where the commonly-used commands are located.**	The student: • *Creates a product as directed, creates a new file and enters appropriate file name, saves files to a hard drive in an identified location (e.g., folder), and retrieves it at a later time.* • *Understands computer-based terms: network, directory, spreadsheet.* • *Connects to a selected printer on a network.* • *Uses digital cameras and video cameras as directed and records to removable media and uploads the images or movies to a computer.*	The student: • **Performs basic computer processes including creating, storing, and editing text and graphic information on a computer.** • **Demonstrates competency in accessing information from CD-ROMs and other storage media, from software programs, and from the Internet as appropriate to complete directed and independent learning activities and to create products.** • *Saves and backs up data onto appropriate media (floppy, hard drive, CD-R, memory card, etc.) using proper care and using procedures that will ensure the information is stored safely and securely.* • *Understands computer-based terms: spreadsheet, cell, row, column.*

Standard 2:   SOCIAL, ETHICAL, AND HUMAN ISSUES—Students understand the ethical, cultural, and societal issues related to technology. Students practice responsible use of technology systems, information, and software.

BENCHMARKS K-3	GRADE K PERFORMANCE INDICATORS	GRADE 1 PERFORMANCE INDICATORS	GRADE 2 PERFORMANCE INDICATORS	GRADE 3 PERFORMANCE INDICATORS
• *Work as a contributing member of a team (which can include peers and others) when using technology in the classroom.* • **Describe and personally demonstrate positive social and ethical behaviors when using technology or as a means of communication or creating a product or service.** • **Give reasons for exercising appropriate caution when using the Internet.** • *Describe and demonstrate the ability to practice responsible use of technology systems and software.* • **Identify the ways in which concepts of personal property apply to technology.**	The student: • *Gives examples of people connected to each other using computer-based technologies and why they need to follow rules.*	The student: • **Follows School Computer Policy (Acceptable Use Policy for Internet included).** • **Demonstrates proper care and use of technological equipment and software.** • **Recognizes and respects ownership of another person's work.** • **Helps neighbor while using computers in a lab.**	The student: • *Follows School Computer Policy* • *Continues to demonstrate proper care and use of technological equipment and software, both for standalone and networked computers.* • *Shows applied "netiquette" rules while online.*	The student: • **Regularly shows responsible behavior for the care of computers and of information stored in computers in the classroom.** • **Contributes work as a member of a team in creating a product of a learning activity that uses computer technology.** • **Describes an ethical and responsible user of the Internet.** • **Makes the analogy between stealing and software piracy or license violation and states reasons why intellectual property needs to be protected.**

Standard 3:   TECHNOLOGY AS A TOOL FOR PRODUCTIVITY—Students use technology tools to enhance learning, increase productivity, and promote creativity. Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works.

BENCHMARKS K-3	GRADE K PERFORMANCE INDICATORS	GRADE 1 PERFORMANCE INDICATORS	GRADE 2 PERFORMANCE INDICATORS	GRADE 3 PERFORMANCE INDICATORS

• **Create appropriate multimedia products and presentations appropriate to own developmental level.**
• *Know features and uses of current and emerging technology.*
• *Use similar technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem-solving, communication, and illustration of thoughts, ideas, and stories.*
	The student:
	• *Uses the computer to learn how to manipulate text.*
	  - *Creates, opens, closes, and saves a document: uses pull down menus; opens file; closes file; uses Save and Save As.*
	  - *Enters text and modifies text: enters text; deletes text.*
	  - *Knows location of and uses for special keys such as spacebar, return, shift, option, command, caps lock, and delete.*
	  - *Prints whole documents.*
	• *Adds graphics to a text document to make it more interesting and effective. This includes learning the following skills:*
	  - *Adds graphics to a word processing document: inserts clip art.*
	  - *Uses a draw/paint program: identifies tool bar; uses color palette.*
		The student:
		• **Uses the computer for learning additional ways to manipulate text and graphics to make documents more interesting and effective.**
		  - **Enters and modifies text: copies text, pastes text, selects text, changes font style (e.g., bold), changes font size (e.g., size 26).**
		• *Adds graphics in a word processing program: e.g., WordArt.*
		• *Uses proper language conventions (capitals, punctuation, spaces, etc.) while creating documents.*
		• *Expands on skills using paint and draw programs (e.g. line, circle, square, patterns, and color tools).*
			The student:
			• *Uses the computer to improve products.*
			  - *Creates two versions of the same file by modifying one and saving it with a different file name that has relation to the first one.*
			  - *Uses a draw/paint program to resize and rotate an object.*
			  - *Creates a slideshow: inserts a slide; adds sound; adds graphic; adds a variety of transitions; shows slideshow to class.*
			• *Participates in a whole-class project with teacher using a spreadsheet to display data, do calculations, and chart selected information.*
				The student:
				• **Uses the computer to refine documents for printing and distribution.**
				  - **Enters and modifies text: uses undo and redo; text wraps.**
				  - **Prints documents: uses print preview and zoom; prints selected parts of document.**
				  - **Formats documents: changes line spacing; selects page orientation.**
				• *Uses developmentally appropriate software programs to create stories, reports or essays that combine any combination of text, pictures, sounds, and video.*
				• *Progresses satisfactorily through software programs that are designed to strengthen basic skills and critical thinking skills in various content areas (such as programs relating to math, reading, science, and music).*
				• **Understands and uses spreadsheet programs: enters data in appropriate fields, identifies cells, creates charts, prints spreadsheet.**

Standard 4:   TECHNOLOGY AS A TOOL FOR COMMUNICATIONS—Students use technology to communicate, collaborate, publish, and interact with peers, experts, and other audiences. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

BENCHMARKS K-3	GRADE K PERFORMANCE INDICATORS	GRADE 1 PERFORMANCE INDICATORS	GRADE 2 PERFORMANCE INDICATORS	GRADE 3 PERFORMANCE INDICATORS
• **Access, process, organize, and communicate information using the appropriate technology communication tools to gather information and to communicate with others (e.g., using e-mail, the Internet, video, telephone, word-processor, or paper-and-pencil to create a class poster on a selected theme).** • *Describe various technology tools and their functions in communication.*	The student: • *Identifies and uses the forward and backwards page arrows, home, and links in various programs.* • *Participates in a teacher-directed group project using telecommunications tools (telephone, e-mail, ask an expert, etc.).*	The student: • *Explores functions of web browser and identifies characteristics of teacher-specified websites.* • *Creates projects for display (e.g., on school bulletin board and parent newsletter).* • *Creates a simple story to be shared with other students and parents using computer technology.*	The student: • **Strengthens web browser skills: uses search engines, bookmarks or favorites, and history location box.** • **Uses drawing and painting programs to enhance text documents and to create flyers, posters, display boards, etc.** • **Uses telecommunications tools to participate in group projects (e-mail, electronic postcards, ask an expert, etc.).**	The student: • **Uses electronic means of communication to connect and do interactive messaging with another student outside of the classroom.** • **States where to find online sources of "experts" (live or automated) that can help him/her in creating products of learning activity in the classroom.**

Standard 5: **TECHNOLOGY AS A TOOL FOR RESEARCH—Students use technology to locate, evaluate, and collect information from a variety of sources. Students use technology tools to process data and report results. Students evaluate and select new information resources and technological innovations based on the appropriateness to specific tasks.**

BENCHMARKS K-3	GRADE K PERFORMANCE INDICATORS	GRADE 1 PERFORMANCE INDICATORS	GRADE 2 PERFORMANCE INDICATORS	GRADE 3 PERFORMANCE INDICATORS
• **Identify and use print and electronic sources of databases in the collection, organization, and display of data.** • *Process information retrieved electronically (e.g., retrieving some statistical information over the Internet and turning the information into a chart or graph).*	The student: • *Describes what the teacher is doing when navigating within a CD-ROM-based or Internet-based reference source.*	The student: • *Follows directions for using a CD-ROM-based encyclopedia or dictionary following directions given by teacher.*	The student: • **Finds information on selected websites by using the search function on the particular website.** • **Uses CD-ROMs, the Internet, and other electronic resources for locating information on specific academic subjects being covered.**	The student: • **Uses online and standalone electronic reference materials, such as CD-ROM and online encyclopedias.** • **Knows what kinds of print and online information resources are available at the school library.** • **Distinguishes between relevant and irrelevant information using criteria.**

Standard 6:   TECHNOLOGY AS A TOOL FOR PROBLEM SOLVING AND DECISION MAKING—Students use technology resources for solving problems and making informed decisions. Students employ technology in the development of strategies for solving problems in the real world.

BENCHMARKS K-3	GRADE K PERFORMANCE INDICATORS	GRADE 1 PERFORMANCE INDICATORS	GRADE 2 PERFORMANCE INDICATORS	GRADE 3 PERFORMANCE INDICATORS
• *Describe and explain a simple information system that has input, process, output, and feedback.*	The student: • *Understands basic elements of an information system: input, process, output, and feedback.*	The student: • *As a class member, explores websites that address a particular problem or issue chosen by the class that requires input by the student or teacher and returns a feedback result that gives useful information.*	The student: • *Explains the terms input, process, and output and gives an example in computer use.* • *Creates simple decision trees and flowcharts that apply to a problem situation given by the teacher.*	The student: • **Describes and explains different systems, living and non-living, that are similar to the way computers work (e.g., an animal brain) as regards input, processing, output, and feedback.** • **Works with software to develop problem-solving skills through interactivity.**

Standard 1: **BASIC OPERATIONS AND CONCEPTS—Students demonstrate a sound understanding of the nature and operation of technology systems. Students are proficient in the use of technology.**

BENCHMARKS 4-5	GRADE 4 PERFORMANCE INDICATORS	GRADE 5 PERFORMANCE INDICATORS
• **Use keyboard commands, menu commands, toolbars, and other navigational tools in the operation of software that extends beyond minimal functions (e.g., advanced word processing skills, more complex graphics manipulation, automated macro functions).** • **Identify and understand the differences between non-networked and networked computers.**	The student: • **Uses word processing software and standard touch-typing keyboarding skills to create documents.** • **Can explain the different ways one can connect to the Internet or local area network.** • **Performs basic troubleshooting tasks.** • **Creates and stores digital images and videos using any of the following (depending upon availability): scanner, digital camera, digital camcorder.**	The student: • **Follows formatting standards for electronic documents in preparing a document (e.g., readable fonts, one space after each word, page alignments, tabs and ruler settings).** • *Inserts and customizes footers and headers.* • **Reads and applies information from software manuals and/or online help to perform desired operations.** • *Explains and demonstrates the differences in operations between working on standalone and networked computers. As an example, the student can show that information on a networked computer gets updated continuously and information on a standalone computer does not.* • *Compares and contrasts LANs, Internet, and intranets.*

Standard 2:   SOCIAL, ETHICAL, AND HUMAN ISSUES—Students understand the ethical, cultural, and societal issues related to technology. Students practice responsible use of technology systems, information, and software.

BENCHMARKS 4-5	GRADE 4 PERFORMANCE INDICATORS	GRADE 5 PERFORMANCE INDICATORS
• **Identify and take a position on basic issues related to responsible use of technology and information, and describe personal consequences of inappropriate use.** • *Give examples of common uses of technology in daily life and the advantages and disadvantages of those uses.* • *Explain the capabilities and limitations of the different technological media and how they influence the communication of messages.*	The student: • **Recognizes the need for laws in our society and give examples of laws that relate to computers and computer products. Example: knowing the differences among Public Domain software (can be freely copied and distributed), Shareware (can be copied and shared, but user is obligated to pay fee to author of the program), and commercial software (produced and sold by a company for profit with legal consequences for not following license agreements).** • **Understands and abides by acceptable use policies and other school rules on the use of the Internet and other electronic technologies.** • *Gives examples of how computers and other electronic tools are used in daily life and how life would be different without them.*	The student: • **States in own words the rules of the computer lab and gives reasons for the rules.** • **Gives examples of how technology and its use is regulated by laws.** • **Describes negative consequences of software piracy, computer hacking of secure systems, identity theft, and invasion of privacy on one hand and the importance of protecting intellectual property and privacy on the other hand.** • **Describes the different ways that text, voice, pictures, and video are distributed by computers and related technologies and how each means of distribution affects both the receiver of the information and the nature of the information.** • **Cites examples of careers that require computer literacy.**

Standard 3:   **TECHNOLOGY AS A TOOL FOR PRODUCTIVITY—Students use technology tools to enhance learning, increase productivity, and promote creativity. Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works.**

BENCHMARKS 4-5	GRADE 4 PERFORMANCE INDICATORS	GRADE 5 PERFORMANCE INDICATORS
• **Use general purpose productivity tools (word processor, spreadsheet, and database) and peripherals to support personal productivity, to facilitate learning throughout the curriculum, and to remediate skill deficits.** • **Use technology tools (e.g., multimedia authoring, presentation, web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom.**	The student: • **Uses a presentation or drawing program to create an electronic slideshow.** • **Uses a database program to create an original database as a group activity.** • **Uses a basic drawing/painting program's tools (line, shapes, eraser, brushes, repeated patterns, etc.) to create and manipulate the elements placed into a picture.** • **Uses a spreadsheet program to organize and present relevant data.**	The student: • **Uses word processors to do a variety of written works, such as letters, reports, poems, and stories.** • **Uses spreadsheets to help solve problems in math, science, and social studies and to look for patterns in data based on graphs created by the spreadsheet program.** • **Uses a database program to collect, organize, sort, and filter information, and to report the information in various forms depending on the purpose of the reporting.** • **Creates multimedia and hypermedia products individually or collaboratively to communicate a message, report on a project or activity, or present a product to various audiences.**

Standard 4:   TECHNOLOGY AS A TOOL FOR COMMUNICATIONS—Students use technology to communicate, to collaborate, publish, and interact with peers, experts, and other audiences. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

BENCHMARKS 4-5	GRADE 4 PERFORMANCE INDICATORS	GRADE 5 PERFORMANCE INDICATORS
• **Use telecommunications efficiently and effectively to access remote information and communicate with others in support of directed and independent learning and for pursuit of personal interests.** • **Explain the advantages and disadvantages in the use of various technologies to deliver information for a target audience (e.g., compare communication through video over mass media; e-mail over the Internet, CD-ROM, or person-to-person).**	The student: • **Independently uses telecommunications to retrieve information from various sources (e.g. websites, experts, organizations) on a topic of personal interest.** • **Uses technology tools independently (e.g., multimedia authoring, presentation, web tools, digital cameras) to exchange information with others who share the same interest to produce knowledge products for various audiences.**	The student: • **Uses telecommunications to retrieve and share information on a topic of personal interest effectively and efficiently. For example, student participates in an online group project (such as geography exploration, weather reporting, current events tracking) to practice exchange of information gathering and reporting with students in remote locations.** • **Creates new e-mail messages, replies to received messages, and saves selected messages.** • **Explains which means of communication and distribution of information is the most effective for a given purpose or audience (such as the web for information that changes daily, or books for information that does not change at all or slowly over time).**

Standard 5: **TECHNOLOGY AS A TOOL FOR RESEARCH—Students use technology to locate, evaluate, and collect information from a variety of sources. Students use technology tools to process data and report results. Students evaluate and select new information resources and technological innovations based on the appropriateness to specific tasks.**

BENCHMARKS 4-5	GRADE 4 PERFORMANCE INDICATORS	GRADE 5 PERFORMANCE INDICATORS
• **Determine appropriate technology tools for accessing information and resources.** • **Develop media literacy by identifying the source of information and the point of view presented for analysis of any bias (e.g., distinguishes whether material retrieved over the Internet is fact or opinion and whether the source is primary or secondary).**	The student: • **Searches for information independently using appropriate online resources.** • **Accesses, selects, and organizes information for inclusion into a research product, following proper citing procedures**.	The student: • **Determines and employs methods to evaluate electronic information for accuracy and validity.** • **Demonstrates effective use of Internet search engines to find information relevant to the topic of inquiry.** • **Identifies and evaluates the sources as well as information downloaded from the web.**

Standard 6: **TECHNOLOGY AS A TOOL FOR PROBLEM SOLVING AND DECISION MAKING—Students use technology resources for solving problems and making informed decisions. Students employ technology in the development of strategies for solving problems in the real world.**

BENCHMARKS 4-5	GRADE 4 PERFORMANCE INDICATORS	GRADE 5 PERFORMANCE INDICATORS
• **Give examples of how technology can be used in everyday life to solve problems and influence decisions we make.** • **Describe how technology affects our world, our society, and ourselves.** • **Construct technological information systems which use input, process, output, and feedback.**	The student: • **Uses electronic information to help solve a problem presented by the teacher.** • **Describes both positive and negative impacts of technology on people, society, and the world**.	The student: • *Describes how the use of technology affects problem solving and decision making in everyday life.* • *Describes how the use of information technology tools affect the daily lives of students and others.* • *Constructs a flowchart of the components of information systems showing the use of input, process, output, and feedback.*

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Standard 1:   BASIC OPERATIONS AND CONCEPTS—Students demonstrate a sound understanding of the nature and operation of technology systems. Students are proficient in the use of technology.

BENCHMARKS 6-8	GRADE 6 PERFORMANCE INDICATORS	GRADE 7 PERFORMANCE INDICATORS	GRADE 8 PERFORMANCE INDICATORS

• **Identify, describe, and apply strategies for solving routine hardware and software problems that occur during everyday use.**
• *Know features and uses of current and emerging technology.*
	The student:
	• **Understands the key features and uses of word-processing software.**
	  - **Uses touch-typing techniques to type 10-20 words per minute.**
	  - **Practices using the number pad.**
	  - **Uses proper punctuation marks in word processor documents.**
	  - **Formats a paragraph according to specifications that include changes in font, alignment, graphics, and spell-checking.**
	• **Applies proper procedures for restoring computer function when programs "freeze" or otherwise malfunction.**
		The student:
		• *Understands the more advanced key features and uses of word-processing software.*
		  - *Builds up typing speed from previous ability level.*
		  - *Uses a word-processor program to organize ideas (e.g., the program's outliner view) before writing the text of a document.*
		  - *Uses various templates in a word-processing program to produce different kinds of documents.*
		• *Describes software and hardware problems that may occur when using technology.*
		• **Explains the key features and uses of database programs**.
			The student:
			• *Distinguishes between hardware-based or software-based problems when computers fail to work and decides if the problem can be solved by self.*
			• *Describes and uses different ways of connecting to the Internet in school and other places.*
			• **Uses the software and hardware needed to view, download, decompress, and open documents, files, and programs from appropriate and approved Internet sites and archives.**
			• **Copies and pastes information from an electronic source to a personal document with proper citation.**
			• **Compares key features and uses of current and emerging technology.**

Standard 2:   SOCIAL, ETHICAL, AND HUMAN ISSUES—Students understand the ethical, cultural, and societal issues related to technology. Students practice responsible use of technology systems, information, and software.

BENCHMARKS 6-8	GRADE 6 PERFORMANCE INDICATORS	GRADE 7 PERFORMANCE INDICATORS	GRADE 8 PERFORMANCE INDICATORS
• **Demonstrate knowledge of current changes in information technologies and the effect those changes have on the workplace and society.** • **Give reasons for the establishing of guidelines for legal and ethical behaviors when using information and technology, and discuss responsible use.** • **Identify, compare, and contrast the impact and effects of technology.**	The student: • **Gives examples of how information technology has changed and affected life globally**.	The student: • *Demonstrates understanding of the concepts on privacy and security.* • *Identifies both positive and negative effects of technology on possible career choices.*	The student: • Submits a reflective piece on the topic of intellectual property and its protection. • Explains the need for and abides by Acceptable Use Policies on the use of the Internet and other electronic technologies.

Standard 3: **TECHNOLOGY AS A TOOL FOR PRODUCTIVITY—Students use technology tools to enhance learning, increase productivity, and promote creativity. Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works.**

BENCHMARKS 6-8	GRADE 6 PERFORMANCE INDICATORS	GRADE 7 PERFORMANCE INDICATORS	GRADE 8 PERFORMANCE INDICATORS
• **Use content specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, web tools) to support learning and research.** • **Apply productivity/ multimedia tools and peripherals to support personal and group productivity and collaboration and learning throughout the curriculum**.	The student: • **Creates a simple spreadsheet that uses formulas (addition, subtraction, multiplication, and division) to automatically calculate results.** • **Imports spreadsheet information into a word-processing document.** • **Plans and implements a multimedia presentation on a selected topic as a member of a work group.** • **Uses a class-created or other previously-created database to find information that conforms to specified parameters (e.g., males who are taller than five feet**).	The student: • *Uses a spreadsheet program to present data in appropriate chart forms.* • *Imports spreadsheet information into a word-processing document.* • *Uses a database program to organize data from a group project and to create reports that summarize the results in different ways.* • *Uses computer peripherals, such as probes and simulations to support learning in various content areas.*	The student: • *Uses spelling and grammar checks to edit works for errors.* • *Successfully progresses through learning software titles specific to particular content areas, such as math, science, art, and social studies, designed for middle school level students.* • *Creates and uses projection devices to show hypermedia and multimedia productions with digital video, audio, and links to HTML documents or other programs. Converts presentations for display as web pages as a member of a group.*

Standard 4:   TECHNOLOGY AS A TOOL FOR COMMUNICATIONS—Students use technology to communicate, to collaborate, publish, and interact with peers, experts, and other audiences. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

BENCHMARKS 6-8	GRADE 6 PERFORMANCE INDICATORS	GRADE 7 PERFORMANCE INDICATORS	GRADE 8 PERFORMANCE INDICATORS
• **Design, develop, publish, and present products (e.g., web pages, video tapes) using appropriate technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom.** • **Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information and to develop solutions or products for audiences inside and outside the classroom.**	The student: • **Demonstrates appropriate use of fonts, styles and type sizes as well as effective use of graphics and page design to communicate effectively.** • **States several design principles that make up an effective communication product.** • **Participates as a group member in posting project information about a project on the Internet.**	The student: • *Chooses graphs to best represent data and states reasons for choosing a particular type of graph.* • *Participates as a group member in producing a web page with interactive features that allows users to respond to the page authors.*	The student: • **Uses a variety of information tools (e.g., websites, presentations, videos, broadcasts) to contribute to a group project that presents a problem, background information, proposed solutions and decisions taken in creating a product that will be posted on the web.**

Standard 5:   TECHNOLOGY AS A TOOL FOR RESEARCH—Students use technology to locate, evaluate, and collect information from a variety of sources. Students use technology tools to process data and report results. Students evaluate and select new information resources and technological innovations based on the appropriateness to specific tasks.

BENCHMARKS 6-8	GRADE 6 PERFORMANCE INDICATORS	GRADE 7 PERFORMANCE INDICATORS	GRADE 8 PERFORMANCE INDICATORS
• **Select and use appropriate tools and information technology resources to accomplish a variety of tasks and solve problems.** • **Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems.**	The student: • **Selects among the information resources located within the school to accomplish an assigned research topic. The resources include standalone computers with CD-ROM based resources, networked computers, printed material in the library, and human resources.**	The student: • *Uses more advanced Boolean searches and online library catalog to locate information on an assigned topic.*	The student: • *Locates and uses appropriate computer resources and technologies available beyond the school through the Internet (e.g., newsgroups, listservs, WWW sites, ftp sites, online public access library catalogs, commercial databases and online services, and other community, academic, and government resources).* • *Evaluates computerized electronic resources, including databases, CD-ROM resources, commercial and Internet online resources, electronic reference works, community and government information electronic resources and selects those relevant to solving a problem.* • **Evaluates the accuracy and validity of information provided by the sources.**

Standard 6: **TECHNOLOGY AS A TOOL FOR PROBLEM SOLVING AND DECISION MAKING—Students use technology resources for solving problems and making informed decisions. Students employ technology in the development of strategies for solving problems in the real world.**

BENCHMARKS 6-8	GRADE 6 PERFORMANCE INDICATORS	GRADE 7 PERFORMANCE INDICATORS	GRADE 8 PERFORMANCE INDICATORS
• **Demonstrate an understanding of concepts underlying hardware, software, and connectivity, and practical applications to learning and problem solving.**	The student: • **Designs a problem-solving process that includes use of electronic resources for a group project that investigates a selected issue which requires a group decision.**	The student: • *Selects appropriate spreadsheet or database functions to solve problems related to content areas.* • *Creates/modifies and uses a database relevant to a classroom assignment.* • *Searches and sorts information using more than one criterion and explains strategies used to find information.*	The student: • *Creates, runs, and edits a computer program (may include spreadsheet functions) that results in several predicted outcomes.*

Standard 1:   BASIC OPERATIONS AND CONCEPTS—Students demonstrate a sound understanding of the nature and operation of technology systems. Students are proficient in the use of technology.

BENCHMARKS 9-12	GRADE 9-12 PERFORMANCE INDICATORS
• **Make informed choices among technology systems, resources, and services (e.g., cost-benefit analysis).**	The student: • **Based on the use of various hardware, software, and services selects the most effective or appropriate ones for a given situation and justifies his/her choice.** • *Selects and uses web page creation tools that are the most effective for a chosen purpose.*

Standard 2:   SOCIAL, ETHICAL, AND HUMAN ISSUES   Students understand the ethical, cultural, and societal issues related to technology. Students practice responsible use of technology systems, information, and software.

BENCHMARKS 9-12	GRADE 9-12 PERFORMANCE INDICATORS
• **Analyze advantages and disadvantages of widespread use of and reliance on technology in the workplace and in society as a whole.**	The student: • *Discusses current issues about increasing dependence upon information technology and how this affects oneself as well as society as a whole.* • **Increasingly develops self-monitoring behavior that stops one from using information technology in illegal and unethical ways.** • **Consistently follows proper citation of sources of information, paper-based or electronic, in all work turned in.**

Standard 3:   TECHNOLOGY AS A TOOL FOR PRODUCTIVITY   Students use technology tools to enhance learning, increase productivity, and promote creativity. Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works.

BENCHMARKS 9-12	GRADE 9-12 PERFORMANCE INDICATORS
• **Use technology tools and resources for managing and communicating information in situations individuals encounter in the world of work** • **Identify and use advanced features of software programs used in previous grade levels**.	The student: • *Participates in a telementoring program with a business/work world mentor (note: telementoring program needs to follow a recommended structure in order to maintain the safety and privacy of the student participants).* • **Uses specialized, industry-standard computer applications to create products,(e.g., music composition software, computer-assisted drawing and drafting programs, mathematics modeling software, and scientific programs).** • *Goes beyond what has been learned directly from a software program used in class and shows some applications of those self-discovered functions.* • *Uses computer-generated modifiable flow charts, time lines, organizational charts, project plans (such as Gantt charts), and calendars to plan and organize complex group problem-solving tasks.* • *Uses hand-held computers (e.g., personal digital assistants or PDAs) to organize his/her contacts and work.* • **Takes and outlines notes with a word processor, database, presentation, or similar productivity program.** • **Uses electronic spreadsheets, databases, and statistical software to process and analyze statistical data.**

Standard 4:   TECHNOLOGY AS A TOOL FOR COMMUNICATIONS—Students use technology to communicate, collaborate, publish, and interact with peers, experts, and other audiences. Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

BENCHMARKS 9-12	GRADE 9-12 PERFORMANCE INDICATORS
• **Routinely and effectively use on-line information resources to meet needs for collaboration, research, publication, communication, and productivity.**	The student: • **Communicates with others on assignments, tasks, and information problems using e-mail, online discussions (e.g., listservs, threaded Web-based discussions, newsgroups), real-time communications (e.g., instant messaging services, chat rooms, IP telephony), desktop teleconferencing, and groupware on the Internet, intranets, and local area networks.** • *Generates topics, defines problems, and facilitates cooperative activities with fellow students and/or subject area experts locally and globally using e-mail, online discussions, real-time communications, desktop videoconferencing, and groupware on the Internet and local area networks.*

Standard 5:   TECHNOLOGY AS A TOOL FOR RESEARCH   Students use technology to locate, evaluate, and collect information from a variety of sources. Students use technology tools to process data and report results. Students evaluate and select new information resources and technological innovations based on the appropriateness to specific tasks.

BENCHMARKS 9-12	GRADE 9-12 PERFORMANCE INDICATORS
• **Select and apply information technology tools for research, information analysis, problem solving, and decision making in learning activities that involve issues or complex topics.** • **Evaluate technology-based options, including distance and distributed education, for self-directed learning.**	The student: • **Selects and states clearly a "real world" issue or problem to investigate, using the full range of electronic resources available at a high school.** • *Assesses the value of primary sources of information available on the Internet.* • *Identifies and applies specific criteria for constructing original data gathering tools, such as online surveys, electronic interviews, or scientific data-gathering tools (e.g., probes, meters, and timers).* • *Uses organizational systems and tools specific to electronic information sources that assist in finding specific and general information (e.g., indexes, tables of contents, user's instructions and manuals, legends, boldface and italics, graphic clues and icons, cross-references, Boolean logic strategies, timelines, hypertext links, knowledge trees, and URLs) and selects appropriate information and properly cites and credits sources.* • *Participates in at least one online tutorial, distance-learning course, or other venue for self-learning and verifies participation in the activity or writes a reflective piece on the experience.*

Standard 6: **TECHNOLOGY AS A TOOL FOR PROBLEM SOLVING AND DECISION MAKING—Students use technology resources for solving problems and making informed decisions. Students employ technology in the development of strategies for solving problems in the real world.**

BENCHMARKS 9-12	GRADE 9-12 PERFORMANCE INDICATORS
• **Investigate and apply expert systems, intelligent agents, and simulations in real-world situations.** • **Give examples of how understanding of how things work and designing solutions to problems of almost any kind can be facilitated by systems analysis.** • **Identify a social, civic, or economic issue and propose a technological solution.**	The student: • **Works on a "real world" problem and develops an electronic journal of online activities (e.g., discussions, resolution of issues, and introduction of new information and follow-up issues) undertaken with external sources and persons on the chosen topic.** • *Creates a flowchart of a complex situation encountered in school or one which could happen in the future using spreadsheets or project tracking, outlining, or "brainstorming organizer," or "idea-generating" software, to come up with multiple solutions and "what if" scenarios and the costs and benefits of each proposed solution.* • **Creates and continually monitors a school service learning project to be completed prior to the end of high school which uses information technology tools that will have a positive impact on his/her community ("community" to be defined by the individual student can range from one's family to a much larger entity). Assesses members of the community to determine the efficacy (results) of the projects.** • **Uses e-mail, ftp, groupware, or other telecommunications capabilities to publish the results of a problem-solving activity.**