

**New Hampshire's IT Career Pathway**  
**Sixteen Benchmark I. T. Skill and Knowledge Goals**  
**With 124 Learner Outcomes for Grades 4,8,10, and12**

<u>IT Skill and Knowledge</u>	<u>IT Literacy – Grade 4</u> <i>Career awareness and IT skills for learning</i>	<u>Rating</u>	<u>Skill Gap</u>	<u>IT Fluency – Grade 8</u> <i>Career exploration and transition for IT skills for learning to IT skills for working</i>	<u>Rating</u>	<u>Skill Gap</u>	<u>IT For All Work – Grade 10</u> <i>Core IT employability for all work</i>	<u>Rating</u>	<u>Skill Gap</u>	<u>IT Employability – Grade 12</u> <i>Initial specialized technical job skills for the IT industry</i>	<u>Rating</u>	<u>Skill Gap</u>
<b>Technology and Society</b>	<ul style="list-style-type: none"> <li>Understands and uses computers as a tool for living and learning</li> <li>Respects the work of others (copyright, acceptable use, responsible use)</li> <li>Understands impact of technology on individuals and communities</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Understands, explains and provides examples of how computers are used as tools for working</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Understands, explains and provides examples of how computers are used to carry out business</li> <li>Understands past and current trends in computer technology</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Understands and explains how IT impacts society and the operation and management of business</li> </ul>	•	•
<b>Information Literacy</b>	<ul style="list-style-type: none"> <li>Appreciates that information can be useful to life and pursues information close to own interests</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Accesses information efficiently and effectively</li> <li>Evaluates information critically and uses information accurately and creatively</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Strives for excellence in information seeking and generation</li> <li>Applies basic principles of visual communication to transferring data into graphics form</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Generates and pursues information and practices ethical behavior in regard to information and information technologies</li> </ul>	•	•
<b>PC Principles and Operation</b>	<ul style="list-style-type: none"> <li>Determines when technology is useful and selects appropriate technology tools and resources</li> <li>Installs and uses programs (disc, CD, download) and uses new simple learning programs</li> <li>Uses computer independently</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Uses PC and MAC computers independently</li> <li>Can teach others to operate computers (turn on, use mouse, call up programs, save and locate files)</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Performs basic personal computer operations</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Understands issues affecting system purchase and upgrade decisions</li> </ul>	•	•
<b>World Wide Web</b>	<ul style="list-style-type: none"> <li>Locates information from web sites</li> <li>Uses search engines</li> <li>Demonstrates responsible behavior while on-line</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Locates and organizes information from internet resources</li> <li>Differentiates between more useful and less useful information</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Uses internet as a research and business tool in a highly effective manner</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Understands and demonstrates use of internet for e-commerce</li> </ul>	•	•
<b>Word Processing to Desktop Publishing</b>	<ul style="list-style-type: none"> <li>Uses word processing for documents, letters and reports (edit, format, spell check)</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Creates complex word processed letters, memos and reports which include tables and footnotes / endnotes in teams</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Creates complex desktop published documents and reports using multiple applications in teams (PhotoShop, PageMaker, Excel, Access)</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Selects, integrates and uses appropriate technologies to create complex professional publications (e.g., yearbook, brochure, multifold flyers)</li> </ul>	•	•

<b>Graphics and Image Processing To Multimedia Publishing</b>	<ul style="list-style-type: none"> <li>Creates simple graphics using drawing and painting software programs</li> <li>Uses scanner and digital camera and images from the web</li> <li>Creates thematic slide shows</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Creates composite imagery integrating photos, drawings and text using drawing or painting software programs</li> <li>Creates a hypermedia presentation</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Creates original audio, video and animation elements</li> <li>Incorporates and edits sound and images from various sources of input</li> <li>Creates interactive multimedia presentations</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Selects, integrates and uses appropriate media for complex interactive multimedia presentations such as web presentation with music, video, and animation, CD-ROM, or video game</li> </ul>	•	•
<b>Keyboarding</b>	<ul style="list-style-type: none"> <li>Familiar with keyboard functions</li> <li>Keyboards with minimal frustration</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Keyboards to 20 words per minute</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Keyboarding to 35 words per minute including numbers and symbols</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Proficient in keyboarding skill (accuracy and speed)</li> </ul>	•	•
<b>E-Mail</b>	<ul style="list-style-type: none"> <li>Corresponds with an e-mail partner</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Requests and sends information globally (with attachments) concerning research topics</li> <li>Uses a listserv</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Understands e-mail system components and organization</li> <li>Uses appropriate e-mail writing style and protocols for various purposes (personal/business)</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Moderates listserv</li> <li>Manages e-mail address books and listservs</li> <li>Uses e-mail effectively and appropriately</li> </ul>	•	•
<b>Software and Systems Integration</b>	<ul style="list-style-type: none"> <li>Recognizes that files/software/hardware have different formats (file types, extensions, operating systems)</li> <li>Selects and uses software appropriate to task (e.g., KidPix, Word)</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Integrates various pieces of software (word processing, images from Illustrator, photos from PhotoShop) into one product/project</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Works with and integrates items into project work from multiple operating systems</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Coordinates communication between different operating environments (e.g., facilitating data exchange and communication between Unix and Windows NT networks)</li> </ul>	•	•
<b>Database Software: Use to Management</b>	<ul style="list-style-type: none"> <li>Searches and sorts prepared databases</li> <li>Defines parts of a database</li> <li>Develops simple databases and enters information</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Uses database to manage personal information (music collections, phone numbers)</li> <li>Creates, modifies and prints database reports</li> <li>Applies search and sort strategies</li> <li>Accesses local, national, regional databases (e.g., DOL, occupation information) for project work</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Applies database to actual situations and real word (business) problems (college scholarships)</li> <li>Uses, modifies, designs and creates relational databases, including queries, forms and reports</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Critically analyzes and evaluates databases and their complex interaction</li> <li>Accesses and applies/uses large scale databases for project work (e.g., GIS, census, corporate reports)</li> </ul>	•	•
<b>Spreadsheet</b>	<ul style="list-style-type: none"> <li>Creates graphs and charts</li> <li>Defines spreadsheet terms</li> <li>Enters data into prepared spreadsheet</li> <li>Performs simple mathematical calculations and notices changes</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Uses spreadsheets for managing finances, addresses, purchases</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Applies spreadsheet principles to real-life situations and business problems</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Designs, creates, modifies and troubleshoots spreadsheets</li> <li>Uses databases functions to perform "What If Analysis" or decision models</li> </ul>	•	•
<b>Operating Systems</b>	<ul style="list-style-type: none"> <li>Uses both CD-ROMS and 3.5" disks</li> <li>Obtains and transfers information from each</li> <li>Maintains files</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Maintains files and folders in more than one platform</li> <li>Uses multiple operating systems (MacIntosh, Windows, Unix, DOS)</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Installs software programs and performs basic configuration operations</li> <li>Understands compatibility issues</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Troubleshoots basic configuration problems</li> <li>Customizes operating system environments</li> </ul>	•	•
<b>Programming</b>	<ul style="list-style-type: none"> <li>Follows a simple structured program (e.g., Lego LOGO, Basic)</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Creates simple structured programs (e.g., Lego Mindstorms, HTML)</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Creates simple object oriented programs using already developed source code (e.g., Java Script, Macros)</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Creates programs developing own source code (e.g., web applications, free/shareware)</li> </ul>	•	•

<b>Hardware Installation and Configuration</b>	<ul style="list-style-type: none"> <li>Demonstrates knowledge of individual parts that make up a stand-alone PC computer system and the relationship between components</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Installs and configures hardware in a PC Computer system (e.g., printers)</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Troubleshoots minor problems and can articulate problems to technicians</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Demonstrates basic knowledge of PC hardware troubleshooting and maintenance</li> </ul>	•	•
<b>Network Technologies</b>	<ul style="list-style-type: none"> <li>Can manage one's own electronic portfolio in a networked environment</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Understands overall design and components of a LAN and WAN system</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Performs basic set up and configuration of network hardware and software</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Monitors overall net work operations</li> <li>Troubleshoots basic problems</li> <li>Implements administrative functions</li> </ul>	•	•
<b>Self-Management, Teamwork and Communication (Soft Skills)</b>	<ul style="list-style-type: none"> <li>Works in teams</li> <li>Values diversity</li> <li>Develops basic skills in literacy and numeracy</li> <li>Listens actively and communicates own ideas</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Solves problems</li> <li>Makes decisions</li> <li>Integrates learning</li> <li>Writes clearly and concisely</li> <li>Calculates accurately</li> <li>Navigates systems</li> <li>Adapts to changing environments</li> <li>Demonstrates integrity, honesty and ethical behavior</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Speaks effectively and persuasively</li> <li>Analyzes, interprets information, and draws conclusions</li> <li>Manages resources</li> <li>Generates ideas</li> <li>Coaches others</li> <li>Monitors and corrects systems</li> </ul>	•	•	<ul style="list-style-type: none"> <li>Leads teams</li> <li>Negotiates effectively</li> <li>Continuously improves quality of work</li> <li>Teaches others</li> <li>Generates designs</li> <li>Creates and manages projects</li> </ul>	•	•

*\*The Western NH Business and Education Partnership, as a Center of Excellence for the National Tech Force Initiative, participated in the Design and Development of the Pathway/Pipeline Model Benchmark Chart.*

### Ratings

NO	Not Offered
1	Basic Level
2	Intermediate Level
3	Advanced Level