

# Context Analysis

## Technology Standards for Students

Lakeside High School is a part of the New Hanover County School system and the State of North Carolina Department of Instruction. The standards for each national, state and local organization as related to this technology implementation are listed below.

ISTE for Students	NC Performance Indicators for Technology - Grades 6-8	New Hanover County Technology Plan for Students
<p><b>1. Basic operations and concepts</b></p> <ul style="list-style-type: none"> <li>• Students demonstrate a sound understanding of the nature and operation of technology systems</li> <li>• Students are proficient in the use of technology</li> </ul>	<ul style="list-style-type: none"> <li>• Apply strategies for identifying and solving routine hardware and software problems that occur during everyday use.</li> <li>• Demonstrate an understanding of concepts underlying hardware, software and connectivity and of practical applications to learning and problem solving.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide a technology facilitator/computer resource teacher and media specialist for pedagogical support at each school site</li> <li>• Provide support to facilitate collaborative planning between the teacher, the computer resource teacher/facilitator and the media specialist at the school level</li> </ul>
<p><b>2. Social, ethical and human issues</b></p> <ul style="list-style-type: none"> <li>• Students understand the ethical, cultural and societal issues related to technology</li> <li>• Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits and productivity</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate knowledge of current changes in information technologies and the effort those changes have on the workplace and society.</li> <li>• Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse.</li> <li>• Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify the barriers prohibiting flexible access to media and technology facilities</li> <li>• Create a plan to address barriers to flexible access</li> </ul>
<p><b>3. Technology productivity tools</b></p> <ul style="list-style-type: none"> <li>○ Students use technology tools to enhance learning, increase productivity and promote creativity</li> <li>○ Students use a variety of productivity tools to collaborate in constructing technology-enhanced models, prepare publications and produce other creative works</li> </ul>	<ul style="list-style-type: none"> <li>• Use content-specific tools, software and simulations (e.g. environmental probes, graphing calculators, and exploratory environments, Web tools) to support learning and research.</li> <li>• Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify, communicate and utilize DPI technology resources</li> <li>• Provide peripheral technology tools for students</li> <li>• Utilize technology-based assessment tools to measure reading and math preparedness and to differentiate instruction as necessary</li> <li>• Provide assistive technology tools for students (individual, small group, classroom, and offsite)</li> </ul>
<p><b>4. Technology communications tools</b></p> <ul style="list-style-type: none"> <li>• Students use telecommunications to</li> </ul>	<ul style="list-style-type: none"> <li>• Design, develop, publish and present products (e.g. Web pages, videotapes) using</li> </ul>	

<p>collaborate, publish and interact with peers, experts and other audiences</p> <ul style="list-style-type: none"> <li>• Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences</li> </ul>	<p>technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom.</p> <ul style="list-style-type: none"> <li>• Collaborate with peers, experts, and other 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.</li> </ul>	
<p><b>5. Technology problem-solving and decision-making tools</b></p> <ul style="list-style-type: none"> <li>• Students use technology to locate, evaluate, and collect information from a variety of sources</li> <li>• Students use technology tools to process data and report results</li> <li>• Students evaluate and select new information resources and technological innovations based on the appropriateness of specific tasks</li> </ul>	<ul style="list-style-type: none"> <li>• Design, develop, publish and present products (e.g. Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom.</li> <li>• Collaborate with peers, experts, and other 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.</li> <li>• Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems.</li> <li>• Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources concerning real-world problems.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide remediation and retesting opportunities for students who do not pass the Computer Skills test</li> <li>• Prepare and deploy a Computer Skills remediation program of study for teachers and students</li> <li>•</li> </ul>
<p><b>6. Technology problem-solving and decision-making tools</b></p> <ul style="list-style-type: none"> <li>• Students use technology resources for solving problems and making informed decisions</li> <li>• Students employ technology in the development of strategies for solving problems in the real world</li> </ul>	<ul style="list-style-type: none"> <li>• Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum.</li> <li>• Design, develop, publish and present products (e.g. Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom.</li> <li>• Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems.</li> <li>• Demonstrate an understanding of concepts underlying hardware/software and connectivity and of applications to learning and problem solving.</li> </ul>	

	Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of information sources concerning real-world problems.	
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### Technology Standards for Teachers

Teachers are recognized as change agents who have the power to make a difference in classroom practices (Hurst, 1999). We need to analyze the relevant educational technology standards and policies before developing our change plan. The following is a summary of state/district policies and standards related to the change.

<b>ISTE for Teachers</b>	<b>NC Performance Indicators for Technology – Grades 6-8</b>	<b>New Hanover County Technology Plan for Teachers</b>
<b>1. Technology Operations and Concepts</b> <ul style="list-style-type: none"> <li>• Demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Education Technology Standards for Students)</li> <li>• Demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate fundamental computer operations skills and understanding of technology concepts and terms related to application of technology in a technology-enhanced learning for students</li> <li>• Expand and integrate technology knowledge and skills to and into current and emerging technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a technology self assessment for productivity tools</li> <li>• Develop a technology self assessment for instructional content</li> </ul>
<b>2. Planning and Designing Learning Environment and Experiences</b> <ul style="list-style-type: none"> <li>• Design developmentally appropriate opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners</li> <li>• Identify and locate technology resources and evaluate them for accuracy and suitability</li> <li>• Plan for the management of technology resources within the context of learning activities</li> <li>• Plan strategies to manage student learning in a technology-enhanced environment</li> </ul>	<ul style="list-style-type: none"> <li>• Select and create learning experiences that are appropriate for curriculum goals, relevant to learners, based on principles of effective teaching and learning, incorporate the use of media and technology for teaching where appropriate, and support learner expression in a variety of media using a variety of media communication tools</li> <li>• Use computer and other technologies effectively and appropriately to collect and communicate information on student learning in a variety of formats and methods</li> <li>• Develop performance tasks that require students to locate and analyze information as well as draw conclusions, and use a variety of media to communicate the results clearly</li> </ul>	<ul style="list-style-type: none"> <li>• Deploy a technology self assessment for productivity tools</li> <li>• Deploy a technology self assessment for quality instructional content</li> <li>• Provide training in technology integration for teachers</li> <li>• Model and demonstrate technology integration which reflects curriculum standards</li> <li>• Identify practitioners to serve as model teachers for technology integration</li> </ul>
<b>3. Teaching, Learning, and the Curriculum</b> <ul style="list-style-type: none"> <li>• Facilitate technology-enhanced experiences that address content standards and student technology standards</li> </ul>	<ul style="list-style-type: none"> <li>• Use technology to identify what students should know and be able to do</li> <li>• Use media and technology to support curriculum and develop learning that address</li> </ul>	<ul style="list-style-type: none"> <li>• Provide diverse training based on needs identified on self assessment following NCLB standards</li> <li>• Provide diverse training based on needs</li> </ul>

<ul style="list-style-type: none"> <li>• Use technology to support learner-centered strategies that address the diverse needs of students</li> <li>• Apply technology to develop student higher order skills and creativity</li> <li>• Manage student learning activities in a technology-enhanced environment</li> </ul>	<p>the diverse needs of students</p> <ul style="list-style-type: none"> <li>• Locate and select appropriate teaching/learning resources and curriculum materials for the content area and target audience</li> <li>• Use a variety of technology tools to support student learning activities in a technology-enhanced environment</li> <li>• Use media and technology to facilitate teaching strategies specific to the discipline</li> </ul>	<p>identified on school needs and district initiatives following NCLB standards</p> <ul style="list-style-type: none"> <li>• Model and demonstrate technology integration which reflects curriculum standards</li> </ul>
<p><b>4. Assessment and Evaluation</b></p> <ul style="list-style-type: none"> <li>• Apply technology in assessing student learning of subject matter using a variety of assessment techniques</li> <li>• Use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning</li> <li>• Apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity</li> </ul>	<ul style="list-style-type: none"> <li>• Apply technology in assessing teaching/learning resources and curriculum materials for the content area and target audience</li> <li>• Use media and technology to collect and analyze data, interpret results, and communicate findings related to teaching/learning practice</li> <li>• Assess students' performance in the use of technology resources for learning, communication, and productivity in a variety of evaluation methods</li> </ul>	<ul style="list-style-type: none"> <li>• Implement new online system for registration and evaluation of training</li> </ul>
<p><b>5. Productivity and Professional Practice</b></p> <ul style="list-style-type: none"> <li>• Use technology resources to engage in ongoing professional development and lifelong learning</li> <li>• Continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning</li> <li>• Apply technology to increase productivity</li> <li>• Use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and promote opportunities for teachers to upgrade professional skills and certifications for technology</li> <li>• Provide guidance, standards, and guidelines to create a resource rich, technology rich teaching and learning environment that encourages teacher recruitment and retention</li> <li>• Promote ethical use of technology resources</li> <li>• Model high ethical and professional standards for all teachers</li> </ul>	<ul style="list-style-type: none"> <li>• Provide professional development to support local technology certification and professional development requirements</li> <li>• Provide assistance to schools wishing to include technology integration in school improvement plans</li> </ul>
<p><b>6. Social, Ethical, Legal, and Human issues</b></p> <ul style="list-style-type: none"> <li>• Model and teach legal and ethical practice related to technology use</li> <li>• Apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities</li> <li>• Identify and use technology resources that affirm diversity</li> </ul>	<ul style="list-style-type: none"> <li>• Establish classroom policies and procedures that ensure compliance with copyright law, fair-use guidelines, security and child protection</li> <li>• Ensuring equal access to media and technology resources for all students</li> <li>• Understanding of legal and ethical issues pertaining to computer use, such as how</li> </ul>	<ul style="list-style-type: none"> <li>• Provide training and guidelines on ethical and professional standards of technology use</li> </ul>

<ul style="list-style-type: none"> <li>• Promote safe and healthy use of technology resources</li> <li>• Facilitate equitable access to technology resources for all students</li> </ul>	<p>copyright applies to classroom software use, and what additional safety measures may be needed in the classroom</p>	
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**Technology Support Policies**

In a longitudinal analysis of student achievement in the Tennessee school system, Wright, Horn, and Sanders (1997) found that effective teachers had the most significant impact on student achievement as determined by standardized tests. Furthermore, the states that continue to have the highest student test scores in mathematics and reading are states that have made the most substantial investment in creating and retaining the most highly qualified teacher workshop (Darling-Hammond, 1999). Thus, it is necessary to be informed about policies for teachers in technology plans. In terms of the North Carolina Educational Technology Plan (2005-2009), technology support policies for teachers related to our technology change plan go as follows:

<b>NC for Teachers</b>	<b>New Hanover County School for Teachers</b>
<p><b>1. A variety of professional development opportunities</b></p> <ul style="list-style-type: none"> <li>• On-site professional development through the services of teachers-on-loan</li> <li>• NCwin, an online technology staff development resource</li> <li>• Intel Teach to the Future Workshops</li> <li>• NC Classes Online</li> <li>• Conference presentations</li> <li>• NCWISE training</li> </ul>	<ul style="list-style-type: none"> <li>• Kaleidoscope</li> <li>• NCWiseOwl</li> <li>• Intel Innovation</li> <li>• LEARN NC</li> <li>• eBISTRO</li> <li>• NCWISE training</li> <li>• 10 hours of hands-on technology staff development per certificate renewal cycle</li> </ul>
<p><b>2. Guidance and standards for personal and program</b></p> <ul style="list-style-type: none"> <li>• Performance appraisal instruments for media and technology personnel: MCPAI/TFPAI</li> <li>• Standards and criteria for media and technology certifications</li> <li>• Classroom observation protocol (Pilot)</li> <li>• IMPACT: Guidelines for Media and Technology Programs</li> <li>• INPACT for Teachers</li> <li>• Criteria for evaluation of online professional development</li> <li>• Job descriptions for media and technology personnel</li> <li>• ISTE NETS Standards for teacher technology competencies</li> <li>• Promote the use of media and technology performance appraisal instruments.</li> <li>• Maintain and develop staff development opportunities for all educators.</li> <li>• Identify and promote copyright workshop opportunities to NC educators</li> </ul>	<ul style="list-style-type: none"> <li>• Goalview</li> <li>• Schoollink</li> <li>• eProcurement</li> <li>• TACS (Employee time sheets)</li> <li>• e-mail</li> <li>• Intranet</li> <li>• All attendees are evaluated through an evaluation form by email</li> <li>• Specialized software and hardware training and follow-up support</li> </ul>

**Current Technology Resources**

Lakeside High School currently has the following technology resources:

**Hardware**

Classroom Hardware												
Room #	Subject	Pentium				Printer			Scanner	CD Burner	Projector	Comments
		1	2	3	4	HP	Epson	IBM				
101	Science			1C	1C	1						HP 1012
102	Social Studies		2C		1C	1						HP 1012
103	Language Arts				1C	1						HP 1012
104	Math				1C	1						HP 6122
108	Suspension			4C	1C	1	1					HP 740; Epson 680C
201	Science	1C			1C	2						HP 6MP; 670C
202	Language Arts			1C	1C		1					Epson 740
203	Social Studies			3C	1C	1						HP950C
204	Math		1C		1C	1						HP 6122
205	Social Studies			1C		1						HP 6122
206	Computer Aps			15C	1C	2			1 Opscan			HP 4050N; 685XI
207	Math			1C	1C	1						HP 1012
208	Science		1C		1C	1	2					HP 1012; Epson LQ570
209	Disability		1C		1C	2						HP 4050N; 680C
210	Language Arts				1C	1						HP 4050N
211	Nurse			1C								
300	PE			2C	1C	1						HP 670C
301	Lounge			1C								
302	Language Arts		1C		1C	1	1					HP 840C; Epson LQ570
303	Reading Specialist			1C	1C	1						HP 4050
304	Nova Net		1C	26C		2	2					HP 930C, 5SI; Epson 740
305	Social Studies				1C 1HP	2						HP895 CI, 940C
306	Nova Net			1C								
400	Science/Math Long suspension		1C	4C	1 HP	2						HP 840C, 400
401	Language Arts/Social Studies Long suspension			6C		1		1				HP 6122; IBM 400
600	Secretary			1C		1						HP 6122
601	Secretary				2HP	2						HP 4500N; 6122
Room #	Subject	Pentium				Printer			Scanner	CD Burner	Projector	Comments

		1	2	3	4	HP	Epson	IBM				
602	Principal				1C 1CL	1						HP 820C
603	Vice Principal				1C	1						HP 930C
604	Counselor				1HP	1						HP 930C
605	Deputy			1C			1					Epson 740
607	Social Worker			1C		1						HP 3820
610	Computer Lab			26C 16DL	2HP 1A	2			1- HP Scan Jet 5490C		1 Hitachi 1 Elmo	HP Laser 4000
611			2C	5C	2 C	2			1- HP Scan Jet 5490C			HP Laser 4050; 670C
612					1C 1CL	2	1			1-lomega		HP Laser Jet, 810C; Epson 777
613	Media AV		2C				1					Epson 740
	Wireless cart Laptops			14D								5 yrs old; 63 MB memory; not configured to server
	<b>Totals</b>	<b>1C</b>	<b>12C</b>	<b>45C 20 DL</b>	<b>23C 1A 7HP 2CL</b>	<b>40</b>	<b>10</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>2</b>	
Codes: C = Compaq HP = Hewlett Packer A = Apple DL = Dell Laptop CL = Compaq Laptop												

**Software**

Software	Network	Human Resources	Facilities
All classrooms: <ul style="list-style-type: none"> <li>Inspiration</li> <li>Green Globes – Graphing Equations</li> <li>MS Office 2000</li> <li>Excel</li> <li>NCWise</li> <li>Access</li> </ul>	Internet access in every classroom and administrative office  Dedicated server for faculty, staff and administration only  WAN, LAN or Wireless Connectivity	Computer Resource Teacher is responsible for maintaining and servicing equipment.  She is able to draw support from the county office if needed.	Two-level, 59,576 sq. ft facility  18 Classrooms 1 Computer Lab 1 Media Center 1 Nova Net Lab

<ul style="list-style-type: none"> <li>• Timeliner</li> <li>• Power Point</li> <li>• World Discovery Deluxe</li> <li>• Publisher</li> <li>• Student Reference Library</li> <li>• Windows movie maker</li> <li>• Acrobat Reader</li> <li>• Multi Media Encyclopedia</li> <li>• Dictionary, thesaurus and encyclopedia</li> <li>• Encarta</li> <li>• SkillsBank</li> <li>• MS Works</li> <li>• Eyewitness History of the World</li> <li>• Occupational Outlook Handbook</li> <li>• Windows Media Player</li> <li>• GroupWise</li> <li>• Star Reader Program</li> <li>• OPAC</li> <li>• Classroom Manager</li> </ul>			
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### **Current Use of Technology and Human Resources**

The following information regarding current technology and human resources use was submitted by the Lakeside Computer Resources Teacher, Helen Lipka:

#### Computer Lab

- Teachers are able to sign up for the computer lab as needed.
- The lab typically remains booked for use.
  - Since class size is small, there are often 2 classes in the lab at the same time
- The lab only closes for required testing
  - During closed hours, teachers use the computers in their classroom for projects
- The computer resource teacher delivers classes upon requests from teacher. Some of these classes include:
  - How to Research the Internet
  - Beginning and Advanced PowerPoint
  - Word Processing Skills, Spreadsheet and Database basics for students who have not passed the computer competency test required for graduation
  - Multimedia games such as *Jeopardy*, *Who Wants to be a Millionaire*, and *Hollywood Squares*
  - Data input from tests such as Lightspan

#### Human Resources



The computer resources teacher, “does it all”, which includes but is not limited to the following:

- Troubleshooting and fixing network and hardware issues
  - For problems Helen is not able to handle, technical support is available through a county level technician that is assigned for network and hardware problems
- The remainder of her time is dedicated to instruction
- Helen is also designated to train the faculty on new software purchases

**Comparison of Existing Resources with Required Resources for Implementation**

The goal of the technology change is to improve reading scores through the use of reading and skill improvement software and thereby improve end of grade test scores. By survey, the majority of the teachers felt comfortable using technology in the classroom, however, felt compelled to stay on course and teach to the NC curriculum guidelines for 9<sup>th</sup> grade. Research on classroom use of technology has determined that teacher skills are fundamental for effective use of instructional technology and that professional development is the catalyst to transform teaching practices that effectively use technology (Grove, Strudler, and Odell, 2004). As more technology becomes part of K-12 environment, the need for knowledgeable teachers to use these tools effectively becomes paramount. For those teachers that are not technologically savvy, the computer resource teacher provides support. The devotion of the teachers to adhere to teaching guidelines and standards is encouraging as they will see this technology change as an aid to their struggles in teaching basic reading skills.

	<b>Current Use</b>	<b>Anticipated Needs for Implementation</b>
Technology	<p>All classrooms currently have at least one computer.(see above). Plans are for Lakeside to obtain old computers from Ashley HS as Ashley expands and receives new ones.</p> <p>Skills Tutor evaluation software is available but outdated according to NCS guidelines</p> <p>Server recently upgraded and can accommodate additional computer</p>	<p>Reading Software and/or Updated Skills Tutor to focus on individual reading skills.</p> <p>5 data drops per classroom to allow for expansion</p>
School Facilities	<p>Computer furniture in classrooms to currently house 1-4 computers, depending on the classroom</p>	<p>Re-design of classroom space to accommodate potential new computers and allow for functioning classroom</p> <p>Computer furniture to accommodate new computers</p>
Human Resources	<p>Computer Resource Teacher is currently responsible for troubleshooting and fixing network and hardware issues.</p> <p>New Hanover County Schools had assigned a network person and a hardware person to Lakeside to assist the needs of the Computer Resource Teacher</p>	<p>Computer Resource Teacher will need to be trained in the new software and it’s potential uses; she will in turn train individual teachers.</p> <p>Current reading specialist to be actively involved as a support person for teachers.</p>

