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Information and Communication Technology I

Information and Communication Technology

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The Research and Curriculum Unit (RCU), located in Starkville, Mississippi, as part of Mississippi State University, was established to foster educational enhancements and innovations. In keeping with the land grant mission of Mississippi State University, the RCU is dedicated to improving the quality of life for Mississippians. The RCU enhances intellectual and professional development of Mississippi students and educators while applying knowledge and educational research to the lives of the people of the state. The RCU works within the contexts of curriculum development and revision, research, assessment, professional development, and industrial training.

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Standards in this document are based on information from the following organizations:

Academic Standards

Mississippi Department of Education Subject Area Testing Program

21st Century Skills and Information and Communication Technologies Literacy Standards

In defining 21st century learning, the Partnership for 21st Century Skills has embraced five content and skill areas that represent the essential knowledge for the 21st century: Global awareness; civic engagement; financial, economic, and business literacy; learning skills that encompass problem solving, critical thinking, and self-directional skills; and Information and Communication Technology (ICT) Literacy.

National Educational Technology Standards for Students

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Foreword

Secondary vocational-technical education programs in Mississippi are faced with many challenges resulting from sweeping educational reforms at the national and state levels. Schools and teachers are increasingly being held accountable for providing true learning activities to every student in the classroom. This accountability is measured through increased requirements for mastery and attainment of competency as documented through both formative and summative assessments.

The courses in this document reflect the statutory requirements as found in Section 37-3-49, Mississippi Code of 1972, as amended (Section 37-3-46). In addition, this curriculum reflects guidelines imposed by federal and state mandates (Laws, 1988, ch. 487, §14; Laws, 1991, ch. 423, §1; Laws, 1992, ch. 519, §4 eff. from and after July 1, 1992; Carl D. Perkins Vocational Education Act III, 1998; and No Child Left Behind Act of 2001).

Each secondary vocational-technical course consists of a series of instructional units which focus on a common theme. All units have been written using a common format which includes the following components:

- Unit Number and Title
- Suggested Time on Task - An estimated number of clock hours of instruction that should be required to teach the competencies and objectives of the unit. A minimum of 140 hours of instruction is required for each Carnegie unit credit. The curriculum framework should account for approximately 75-80 percent of the time in the course.
- Competencies and Suggested Objectives
    - A competency represents a general concept or performance that students are expected to master as a requirement for satisfactorily completing a unit. Students will be expected to receive instruction on all competencies.
    - The suggested objectives represent the enabling and supporting knowledge and performances that will indicate mastery of the competency at the course level.
- Suggested Teaching Strategies - This section of each unit indicates strategies that can be used to enable students to master each competency. Emphasis has been placed on strategies which reflect active learning methodologies. Teachers should feel free to modify or enhance these suggestions based on needs of their students and resources available in order to provide optimum learning experiences for their students.
- Suggested Assessment Strategies - This section indicates strategies that can be used to measure student mastery. Examples of suggested strategies could include rubrics, class participation, reflection, and journaling. Again, teachers should feel free to modify or enhance these suggested assessment strategies based on local needs and resources.
- Integrated Academic Topics, 21st Century Skills and Information and Communication Technology Literacy Standards, and Technology Standards for Students- This section identifies related academic topics as required in the Subject Area Assessment Program (SATP) in Algebra I, Biology I, English II, and U. S. History from 1877, which are integrated into the content of the unit. It also identifies the 21st Century Skills and Information and Communication Technology Literacy skills. In addition, national technology standards for

students are associated with the competencies and suggested objectives for the unit are also identified.

- References - A list of suggested references is provided for each unit. The list includes some of the primary instructional resources that may be used to teach the competencies and suggested objectives. Again, these resources are suggested and the list may be modified or enhanced based on needs and abilities of students and on available resources.

Executive Summary

There is a growing sense of urgency that our country must act now to ensure that future generations of Americans can participate fully in the democratic process and the competitive global economy. Also, there is a broad consensus among educators, policy makers, business leaders, and the public that schools today must do a better job of preparing students for challenges and expectations of communities, workplaces, and higher education. The No Child Left Behind Act of 2001 (NCLB) recognizes the urgency of improving public education. The federal law requires students to be proficient in technology literacy by the eighth grade. Technology literacy is more than knowing how to use a computer; it is being able to use digital technology, communication tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledgeable society (Thomas & Knezek, 1995; Learning for the 21st Century, 2002).

Information and Communication Technology (ICT) is an instructional program that prepares individuals to effectively use technology in learning, communication, and life skills. The program is composed of two courses, ICT I and ICT II. In ICT I, students will complete a research-based program of study that includes interpersonal and self-directional skills; basic technology operation and technology concepts; social, ethical, and human issues in technology; technology communication tools; technology resource tools; multimedia presentation applications; word processing applications; spreadsheet applications; and publishing applications (Brown, Malfas, & Marreilli, 2004; Gregory, 2003; Hoggatt & Shank, 2006; Pasework & Pasework, 2003; Shelly, Cashman, & Vermatt, 2006). In ICT II, students will complete a research-based program of interpersonal and self-directional skills; input applications; technology lab management and networking; design applications; graphic design applications; web design applications; database applications; emerging technologies; and technology problem-solving and decision making skills (Brown, Malfas, & Marreilli, 2004; Gregory, 2003; Hoggatt & Shank, 2006; Pasework & Pasework, 2003; Shelly, Cashman, & Vermatt, 2006).

Upon completion of the two year ICT program, 8th grade students will have the opportunity to complete the Internet and Computing Core Certification (IC^3) certification. The IC^3 is a global, standards-based certification program for basic computing and Internet literacy. The IC^3 Program consists of integrated assessment and learning experiences that culminate in certification. The certification helps participants learn and demonstrate computer and Internet literacy through a worldwide industry standard. To become IC^3 certified, one must pass the following three exams: (a) Computing Fundamentals, (b) Key Applications, and (c) Living Online (Microsoft Certification, 2005).

The ICT curriculum aligns with the Mississippi Department of Education Subject Area Testing Standards, 21st Century Skills, and National Educational Technology Standards for Students. The ICT

curriculum also provides students the opportunity to learn workplace skills by integrating 2005 Career Pathways.

Program Description

Information and Communication Technology (ICT) is an innovative instructional program that prepares students to effectively use technology in learning, communication, and life. Students in Information and Communication Technology I complete study in interpersonal and self-directional skills; basic technology operation and technology concepts; social, ethical, and human issues in technology; technology communication tools; technology resource tools; multimedia presentation applications; word processing applications; spreadsheet applications; and design applications.

Students in Information and Communication Technology II complete study in interpersonal and self-directional skills; input applications; technology lab management and networking; publishing applications; graphic design applications; web design applications; database applications; and technology problem-solving and decision making tools.

The ICT curriculum framework is built upon 21st Century Skills standards and the National Educational Technology Standards for Students. Career Pathways and Mississippi Department of Education Subject Area Testing benchmarks are integrated throughout the competencies, objectives, and suggested teaching and assessment strategies. Upon the successful completion of this program, students will be prepared to complete the IC^3 Computer Literacy exam and meet the eighth grade computer literacy requirement of the No Child Left Behind Act of 2001.

Course Outline

Information and Communication Technology I

Course CIP Code: 00.0251

1		Orientation and Ethics	10
2		Basic Operations and Technology Concepts	15
3		Technology Communication and Research Tools	10
4		Keyboarding	35
5		Word Processing and Publishing	35
6		Multimedia Applications	25
7		Career Exploration	10

Information and Communication Technology II

Course CIP Code: 00.0252

1	Safety and Orientation (Review and Reinforcement)	5
2	Input Applications	20
3	Spreadsheets	20
4	Database Applications	20
5	Technology Lab Management and Networking	10
6	Design Applications	15
7	Graphic Design Applications	15
8	Web Design Applications	20
9	Technology Problem-solving and Decision Making Tools	30

Competency 1: Identify course expectations, school policies, program policies, and safety procedures related to Information and Communication Technology (ICT). CP1, CP2, CP3, CP4, CP5

Suggested Objectives:

a. Give a brief overview of the course. Explain to students what ICT is, why it is important, and how it will be delivered.
b. Preview the school handbook, the technology acceptable use policy, and all other safety procedures for classroom level and building level.
c. Preview course objectives and program policies.
d. Discuss IC3 Certification expectations.
e. Provide an overview of career pathways and careers related to each pathway.

Suggested Teaching Strategies:

- Using guided prompts, have students write a reflection describing their history, experience, and feelings about using the computer. Sample prompts can include:
  - When was the first time you used a computer?
  - Do you use the Internet? If so, how do you use it?
  - What is the one kind of technology you could not live without?
- Using presentation equipment, provide the course goals, objectives, and student expectations.
- Using a multimedia presentation, discuss the school handbook, the technology acceptable use policy, classroom procedures, and all safety procedures for the classroom level and building level.
- Read and discuss with students the school acceptable use policy. Have students and parents sign a district approved Technology Acceptable Use Policy. R5, R6, R7, CLS5, T2, T4
- Discuss the course objectives, program policies, etc.
- Create a separate directory for student assignment and a resource notebook at each computer station. Teachers will share this information with students and make sure they know how to use the directories and notebooks.
- Have students complete a pretest on computer literacy skills, 21st Century Skills and Information and Communication Technologies, and Career Pathways to determine what current knowledge they have in these areas. CLS1, CLS2, CLS3, CLS4, CLS5
- Have students interview 10 family members to determine to which career pathway their career goals are aligned.
- Using bulletin board paper, construction paper, and tape, have students work in collaborative groups to create a classroom bar chart of area career pathways. Allow students to discuss what the most popular careers are and why they think they are the most popular. M2

Suggested Assessment Strategies:

- Teacher assessment according to local policy such as written safety test, signed policies, etc.
- Checklist for interviews and group project.
- Peer evaluation of group activities.

Competency 2: Explore personality development and the classroom environment in relation to interpersonal skills, others, and the world of work. [CP1, CP2, CP3, CP4, CP5]

Suggested Objectives:

a. Identify forces that shape personality development including personality traits, heredity, and environment.
b. Complete a learning styles inventory.
c. Develop a report on how personality traits affect teamwork and leadership skills.
d. Write an autobiography.

Suggested Teaching Strategies:

- Use a multimedia presentation with questions from the book 7 Habits of Highly Effective Teens to help students identify their personality traits.
- Have students complete a learning styles inventory.
- Have students discuss the importance of understanding different personality and role play learning styles to effectively work in a team setting.
- Have students use the writing process to write a summary report about their previous knowledge, personality skills, and learning styles. Require students to include a section in the summary report that gives the teacher tips on how to individualize instruction to fit their personality and learning style. Have students identify the purpose and audience for this activity. Also, have students include their understanding of how to effectively work with different personalities and learning styles in a team environment.[L1, L4, CLS4]

Suggested Assessment Strategies:

- Use a rubric to grade the written summary report for organization, audience, and voice.

Competency 3: Develop leadership skills. [CP1, CP2, CP3, CP4, CP5]

Suggested Objectives:

a. Describe the qualities of an effective leader including positive attitude, image, decision making, communication skills, and knowledge.
b. Identify opportunities in the local community that develop leadership skills.
c. Dramatize effective leadership skills.
d. Practice effective leadership skills.

Suggested Teaching Strategies:

- Find two or three journal or internet articles that have information related to different leadership styles, the importance of positive attitudes, decision making skills, communication skills, etc. Divide students into home-base groups of three to five members depending on the number of texts to be read. Assign each student to a base group and a section of the article(s) to read (10 to 15 minutes of independent reading). Have students who have read the same section form small expert groups to discuss key aspects from their portion of the article (15–20 minutes). Have student experts return to

their base groups and invite each person to share the key points from their reading and discussion with others of the group (20–30 minutes). Then, facilitate a large group discussion identifying key concepts from the information that was read. R1, R5, R6, R7, CLS5

- Have students brainstorm to identify local community activities that provide leadership opportunities. Also, have students research and join different student organizations, such as Mississippi Technology Teens and Junior FBLA. M2, CLS1
- Have students work in groups to research, write, and present a dramatization about world leaders that they will study in their social studies classes. Their script and dramatization should highlight their world leaders' leadership qualities including positive attitude, image, decision making, communication skills, and knowledge. L4, M2, CLS1

Suggested Assessment Strategies:

- Participation in class discussion.
- Written test that incorporates personality skills, learning style, and leadership skills.
- Dramatization evaluation teacher rubric.
- Dramatization evaluation peer evaluation rubric.

Competency 4: Compare and contrast career pathways at the state level, national level, and global level. CP1, CP2, CP3, CP4, CP5

Suggested Objectives:

a. Research interests using an interest checklist.
b. Evaluate personal interests and aptitudes as related to career pathways.
c. Research career pathways at the state, national, and global levels.
d. Create a chart or other graphic organizer that compares and contrasts career pathways at each level.

Suggested Teaching Strategies:

- Have students complete and evaluate a career interest inventory. After finding their interest, have students research and develop a job information sheet that includes the amount of education and experience that is needed, and salary related to careers that interest them.
- Have students work independently to research and investigate the economy at state, national, and global levels. CLS1, CLS3
- Have students use the information from their research to create a chart or other type of graphic organizer and a summary that compares and contrasts the economy at a state, national, and global level. R5, R7, L4

Suggested Assessment Strategies:

- Complete career interest inventory.
- Teacher evaluation rubric for the compare and contrast summary; chart.

Competency 5: Exercise sound reasoning in understanding and making complex choices about working in teams. CP1, CP2, CP3, CP4, CP5

Suggested Objectives:

a. Demonstrate an appreciation and respect for diversity.
b. Apply the components of good teamwork including team dynamics, status of team growth, and working through team problems.

Suggested Teaching Strategies:

- Divide students into groups with a set of index cards. Have students use the index cards to create the tallest tower without using verbal communications.
- Lead students in listing and evaluating effective and ineffective teamwork skills.
- Have students return to their groups to read the "Three's a Crowd" case study. Have students discuss and come to a solution for each of the questions listed below the case study.
- Have teams use the writing process to report their solutions by writing a newspaper article. The article will retell the story and explain the solutions to the projected audience. M2, L1, L3, L4, R5, CLS4

Suggested Assessment Strategies:

- Classroom participation.
- Self-evaluation rubric to evaluate newspaper article.
- Teacher evaluation rubric to evaluate the newspaper article for grammar and content.

Competency 6: Understand the ethical, cultural, and societal issues related to technology. CP1, CP2, CP3, CP4, CP5

Suggested Objectives:

a. Discuss ethics in relation to computer use.
b. Discuss ethics in the educational environment.
c. Discuss ethics in the occupational environment.

Suggested Teaching Strategies:

- Discuss computer applications relating to ethics such as copyright laws, piracy, privacy, public domain, unauthorized access, etc. CLS5
- Have students read and discuss case study titled "Plagiarism." As an individual project, have students create a cartoon script about the case study. If time permits, partner with an English teacher and have students research, create, and key reports on topics such as plagiarism, cheating, stealing, time management, punctuality, leadership, etc. R5, R6, L4, CLS4, CLS5, T2
- Discuss ethics in the occupational environment such as having a guest speaker discuss workplace confidentiality, integrity, honesty, punctuality, and cooperation. T2
- Have students create a handmade brochure that educates others on piracy, etc. When skills permit in future units, allow students to transfer the handmade brochure into electronic format. L4, CLS4, T2

Suggested Assessment Strategies:

- Written test where students must read and respond to ethical scenarios and/or problems. Students could key their responses to practice keyboarding skills.
- Use a rubric to assess the brochure.

Competency 7: Practice the responsible use of technology systems, information, and software. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA2

Suggested Objectives:

a. Identify ways to safeguard against computer viruses, worms, Trojan Horses, and spoofing.
b. Discuss techniques to prevent unauthorized computer access and use.
c. Identify safeguards against hardware theft and vandalism.
d. Explain the ways software manufacturers protect against software piracy.
e. Define encryption and explain why it is necessary.
f. Recognize issues related to information accuracy, rights, and conduct.
g. Research issues surrounding information privacy.

Suggested Teaching Strategies:

- Have students use the word processing program found in the keyboarding software program to define and illustrate terminology such as cybercrime, hacker, cyberextortionist, cyberterrorist, virus, worm, Trojan Horse, antivirus program, virus signature, quarantine, denial of service attack, back door, spoofing, firewall, unauthorized access, user name, password, hardware theft, hardware vandalism, software threat, piracy, license agreement, information threat, encryption, digital signature, power surge, surge protector, backup, restore, computer ethics, intellectual property rights, copyright, code of conduct, acceptable use policy, information privacy, cookies, spyware, adware, spam, computer forensics, identity theft, web filtering software, ergonomics, computer addiction, phishing, etc. R1, R4, R7, CLS5, T2, T3, T5
- Have students complete a web quest to research the following privacy laws: CN-SPAM Act of 2003, Sarbanes-Oxley Act of 2002, Provide Appropriate Tools Required to Intercept and Obstruct Terrorism (PATRIOT) Act of 2001, Financial Modernization Act of 1999, Children's Online Privacy Protection Act of 1998, Digital Millennium Copyright Act of 1998, No Electronic Theft Act of 1997, Health Insurance Portability Accountability Act of 1996, National Information Infrastructure Protection Act of 1996, Computer Abuse Amendments Act of 1994, Cable Act of 1992, Telephone Consumer Protection Act of 1991, Computer Matching and Privacy Protection Act of 1988, Video Privacy Protection Act of 1988, Electronic Communications Privacy Act of 1986, Cable Communications Policy Act of 1984, Right to Financial Privacy Act of 1978, Privacy Act of 1974, Family Educational Rights and Privacy Act of 1974, and the Fair Credit Reporting Act of 1970. R5, R6, R7, CLS1, CLS5, T2, T3, T5
- Divide students into two groups. Allow groups to debate ethical and security issues related to file sharing web sites. T2
- Have students create a chart that compares and contrasts the different security products (e.g., antivirus vs. firewalls). R5, M2, T2, T5, T6

Suggested Assessment Strategies:

- Completed vocabulary definitions and illustrations.
- Completed web quest.
- Written test to evaluate knowledge of definitions and privacy legislation.
- Use the debate rubric found at http://www.learnnc.org/articles/persuade-debate-0702 to

evaluate the student debates.

Competency 8: Research social, ethical, and human issues related to technology and careers. CP2, L04

Suggested Objectives:

a. Identify how computers are used in different areas of work, school, and home.
b. Identify the risk of using computer hardware and software.
c. Identify how to use the Internet safely, legally, and responsibly.

Suggested Teaching Strategies:

- Have students research and compile information identifying typical tasks, working conditions, education and training, types of technology used in the job, and wages for careers in government, public administration, law, and public safety. Have students choose between writing a report, creating a collage, role playing, creating a poster, or making a multimedia presentation. Have students present their report for each career that was covered. Written reports will follow the steps in the writing process and rubrics that the language arts teacher uses. R5, R6, R7, M2, M5, CLS3, CLS5, T2, T3, T5
- Have students simulate a career such as a census clerk by collecting and compiling demographic information (age, gender, family size, zip code, previous school, etc.) on classmates and chart the results on a bar graph using paper. For enrichment, have students create the bar chart using a spreadsheet application. M2, M5, CLS3
- Have a guest speaker visit the class to discuss different careers in law enforcement, public safety, basic laws, and court proceedings. CLS3
- Have students prepare for and participate in a mock trial by becoming familiar with legal terms and the legal process and procedures, and by using the information from the guest speaker and by watching a video reinforcing courtroom procedures (trial segment of "Miracle on 34th Street" or similar video). CLS3

Suggested Assessment Strategies:

- Collaborate with the language arts teacher to develop information to evaluate the completion and presentation of the assignment or use the writing rubric from Unit 1 to evaluate the report for ideas, organization, and voice.
- Written test on information provided from the guest speaker.
- Student self-evaluation of participation in the mock trial.

Suggested Rubrics and Checklists

Written Report Writing Rubric

NAME: _____ **DATE:** _____ **PERIOD:** _____

5	3	1
Ideas: The heart of the message, the content of the piece, the main theme, with details that enrich and develop that theme.		
This paper is clear and focused. It holds the reader's attention. Relevant anecdotes and details enrich the central theme. A. The topic is narrow and manageable. B. Relevant, telling, quality details go beyond the obvious. C. Reasonably accurate details. D. Writing from knowledge or experience; ideas are fresh and original. E. Reader's questions are anticipated and answered. F. Insight.	The writer is beginning to define the topic, even though development is still basic or general. A. The topic is fairly broad. B. Support is attempted. C. Ideas are reasonably clear. D. Writer has difficulty going from general observations to specifics. E. The reader is left with questions. F. The writer generally stays on topic.	The paper has no clear sense of purpose or central theme. The reader must make inferences based on sketchy or missing details. A. The writer is still in search of a topic. B. Information is limited or unclear or the length is not adequate for development. C. The idea is a simple restatement or a simple answer to the question. D. The writer has begun to define the topic. E. Everything seems as important as everything else. F. The text may be repetitious and disconnected, containing too many random thoughts.
Organization: The internal structure, the thread of central meaning, the logical and sometimes intriguing pattern of ideas.		
The organizational structure of this paper enhances and showcases the central idea or theme of the paper; it includes a satisfying introduction and conclusion. A. An inviting introduction draws the reader in; a satisfying conclusion leaves the reader with a sense of closure and resolution. B. Thoughtful transitions. C. Sequencing is logical and effective. D. Pacing is well controlled. E. The title, if desired, is original. F. Flows so smoothly, the reader hardly thinks about it.	The organizational structure is strong enough to move the reader through the text without too much confusion. A. The paper has a recognizable introduction and conclusion. B. Transitions often work well. C. Sequencing shows some logic, yet structure takes attention away from the content. D. Pacing is fairly well controlled. E. Organization sometimes supports the main point or story line. A title, if desired, is present.	The writing lacks a clear sense of direction. A. No real lead. B. Connections between ideas are confusing. C. Sequencing needs work. D. Pacing feels awkward. E. No title is present (if requested). F. Problems with organization make it hard for the reader to get a grip on the main point or story line.
Voice: The heart and soul, magic, wit, feeling, and conviction of the writer coming out.		
The writer of this paper speaks directly to the reader in a manner that is individual, compelling, engaging, and has personality. The reader feels a strong interaction with the writer. A. The writer takes a risk. B. The tone and voice give flavor and texture to the message and are appropriate for the purpose and audience. C. Narrative writing seems honest, personal. Expository or persuasive writing reflects a strong commitment to this topic.	The writer seems sincere, but not fully engaged or involved. The result is pleasant or even personable, but not compelling. A. The writing communicates in an earnest, pleasing manner. B. Only one or two moments here or there surprise, delight, or move the reader. C. Writer weighs ideas carefully and discards personal insights in favor of safe generalities. D. Narrative writing seems sincere; expository or persuasive writing lacks consistent engagement. E. Emerges strongly at some places, but is often obscured behind vague generalities.	The writer seems indifferent, uninvolved, or distanced from the topic and/or the audience. Writer speaks in a kind of monotone. A. Writing is humdrum and "risk-free." B. Writing is not concerned with the audience; writer's style is a complete mismatch for the intended reader. C. Writing is lifeless or mechanical. D. No point of view is reflected.

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Dramatization Teacher Evaluation Rubric

NAME: _____ **DATE:** _____ **PERIOD:** _____

Excellent 4	Good 3	Satisfactory 2	Needs Improvement 1
Research of Events			
The student uses a word processing program to produce a script and biography (MLA style). A script with a biography is submitted to the teacher. The script is free of errors.	The student uses a word processing program to produce a script and biography (MLA style). A script with a biography is submitted to the teacher.	The student submits a handwritten script and biography (MLA style) to the teacher.	The student submits a handwritten script and biography (MLA style) to the teacher. A script is submitted to the teacher. No biography is included.
Characters			
The student uses a word processing program to produce a summary and historical account of each character in the script. A narrator gives a brief description to audience members before the dramatization begins.	The student submits a handwritten summary and historical account of each character in the script. A narrator gives a brief description to audience members before the dramatization begins.	The student submits a handwritten summary and historical account of each character in the script.	A summary or historical account of each character is not submitted.
Content			
The story is retold completely with all major events included. A problem and a solution are included in the content.	Most events are dramatized. The story is easy to follow. A problem and a solution are included in the content.	The story events are not in sequence and are hard to follow. A problem is included in the content.	The story events are not in sequence and are hard to follow.
Dramatizations			
All actors and actresses act out the script with proper volume and expression. Relevant props and costumes are used.	All actors and actresses act out the script. Props and costumes are used.	All actors and actresses act out the script. Props and costumes are lacking.	All actors and actresses read the script to the audience. There are no props or costumes.
Participation			
All participants are actively involved in the dramatization.	Most participants are actively involved in the dramatization.	Many participants are not actively involved in the dramatization.	Some people in the group do not involve themselves in the dramatization.

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Dramatization Peer Evaluation Rubric

NAME: _____ **DATE:** _____ **PERIOD:** _____

Directions: Write Yes or No in the blank before each statement.

_____ A narrator gives a brief description of each character to audience members before the dramatization begins.

_____ I can follow the story's events.

_____ I can identify the story's problem.

_____ I can identify the story's solution.

_____ The actors spoke loud enough.

_____ The actors spoke with expression.

_____ The props and costumes fit the play.

_____ All students were actively involved in the play.

Group Member Names:

_____

_____

_____

_____

Evaluator(s):

_____

_____

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Compare and Contrast Summary Rubric

NAME: _____ **DATE:** _____ **PERIOD:** _____

4	3	2	1
Purpose & Supporting Details			
The paper compares and contrasts items clearly. The paper points to specific examples to illustrate the comparison. The paper includes only the information relevant to the comparison.	The paper compares and contrasts items clearly, but the supporting information is general. The paper includes only the information relevant to the comparison.	The paper compares and contrasts items clearly, but the supporting information is incomplete. The paper may include information that is not relevant to the comparison.	The paper compares or contrasts, but does not include both. There is no supporting information or support is incomplete.
Organization and Structure			
The paper breaks the information into whole-to-whole, similarities-to differences, or point-by-point structure. It follows a consistent order when discussing the comparison.	The paper breaks the information into whole-to-whole, similarities-to-differences, or point-by-point structure but does not follow a consistent order when discussing the comparison.	The paper breaks the information into whole-to-whole, similarities-to-differences, or point-by-point structure, but some information is in the wrong section. Some details are not in a logical or expected order, and this distracts the reader.	Many details are not in a logical or expected order. There is little sense that the writing is organized.
Transitions			
The paper moves smoothly from one idea to the next. The paper uses comparison and contrast transition words to show relationships between ideas. The paper uses a variety of sentence structures and transitions.	The paper moves from one idea to the next, but there is little variety. The paper uses comparison and contrast transition words to show relationships between ideas.	Some transitions work well; but connections between other ideas are fuzzy.	The transitions between ideas are unclear or nonexistent.
Grammar and Spelling			
Writer makes no errors in grammar or spelling that distract the reader from the content.	Writer makes 1–2 errors in grammar or spelling that distract the reader from the content.	Writer makes 3–4 errors in grammar or spelling that distract the reader from the content.	Writer makes more than four errors in grammar or spelling that distract the reader from the content.

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Three's A Crowd Case Study

NAME: _____ **DATE:** _____ **PERIOD:** _____

By Doug Carter

The lab instructor divided the class into pairs of students and assigned each pair a workbench where they were to perform the lab exercises. In the opinion of the lab instructor, working in pairs was not only more efficient but was also more enlightening than working alone. Three students working together, however, did not give each student the opportunity to gain the skills portended by the lab objectives.

Bill and Jim were assigned as lab partners, but after the first week Jim dropped the class. Bill had become well acquainted with Jon and Sallie who had been assigned to the adjacent bench. All three felt comfortable working together and they soon became a threesome. Typically, one partner would connect and operate the equipment, the second would record the data, and Bill would watch. Jon and Sallie tried to get Bill to take turns running the equipment, recording the data, and observing. But Bill insisted on just observing. When an assignment was completed, the team would call the instructor who asked a few questions, had them perform some of the targeted skills, and initialed their reports. Bill would always offer his report to be initialed as though he had participated fully in the work.

Questions:

1. Was Bill taking advantage of Jon and Sallie's expertise?

2. Is that the same as cheating?

3. Should Bill receive the same grade as Jon and Sallie?

4. Is Bill as fully prepared for the workplace as Jon and Sallie?

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

Academic Standards

M2 Data Analysis and Prediction
R1 Context Clues (Semantic)
R5 Main Idea and Details (Textual)
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L1 Editing: Capitalization and Punctuation
L4 Meaning (Semantic)

21st Century Literacy Skills

CLS1 Global Awareness
CLS2 Financial, Economic, and Business Literacy
CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T2 Communication and Collaboration
T4 Critical Thinking, Problem Solving, and Decision Making

Suggested References

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Northwest Regional Educational Library. (n.d). *6+1 trait writing scoring continuum.* Retrieved September 15, 2005, from http://www.nwrel.org/assessment/pdfRubrics/6plus1traits.PDF

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U.S. Department of Labor, Bureau of Labor Statistics. (2005). *Occupational outlook handbook (OOH).* Washington, DC: U.S. Government Printing Office.

What do employers expect from me? [Poster]. (Available from Tech Prep Office, Mississippi Department of Education, P.O. Box 771, Jackson, MS 39205)

For additional references, activities, and web resources, please refer to: Information and Computer Technology B.R.I.D.G.E. Web site: http://www.rcu.blackboard.com (Available only to registered users).

Competency 1: Demonstrate a sound understanding of the nature and operation of technology systems. CP1, CP2, CP3, CP4, CP5, CP6, CP7, CF1, CF3

Suggested Objectives:

a. Identify emerging, current, and obsolete technologies.
b. Define and illustrate current terminology associated with computers.
c. Identify types of computers, how they process information, and how individual computers interact with other computing systems and devices.
d. Identify the function of computer hardware components.
e. Identify what an operating system is and how it works (Input, processing, storage, output cycle), and solve common problems related to operating systems.
f. Research accessibility issues related to information technology.
g. Identify factors that go into an individual or organizational decision on how to purchase computer equipment.
h. Identify how to maintain computer equipment and solve common problems relating to computer hardware.

Suggested Teaching Strategies:

- Have students complete a web quest, such as: http://www.berksiu.k12.pa.us/web quest/BarnettR/index.htm to learn about the basic components of a computer system. T1, T5
- Have students complete the online tutorial titled History of Computers located at http://www97.intel.com/discover/JourneyInside/TJI_Intro_lesson1/default.aspx. T1, T5
- If applicable, have students use the Internet to define and illustrate terminology related to the computer system such as input, monitor, CPU, mouse, keyboard, disk drive, printer, hardware, software, RAM, ROM, GUI, file, byte, bit, folder, files, etc. Students should have a definition and a clipart or photograph of each term. R1, R4, R7, T1, T5, CLS5
- Divide students into groups and have each student create a handwritten imaginary budget. Students will use the budget to redesign and update a school computer lab in order to make it accessible for students/people with disabilities. M3, M5, CLS2, T2, T6

Suggested Assessment Strategies:

- Completed web quest or online testing (see resources).
- Term definitions and illustration project as a grade.
- Information Technology in Education Accessibility Checklilst.

Competency 2: Demonstrate proficiency in the setup of a computer system. CP1, CP2, CP3, CP4, CP5, CP6, CP7, CF3

Suggested Objectives:

a. Demonstrate precautions and care when working with computers, printers, storage devices, and

other accessories.

b. Discuss and demonstrate setting up and adjusting a simple computer system. Identify how to change system settings, install, and remove software.

Suggested Teaching Strategies:

- Allow students to work in teams to solve the following case study:
  - A family member has asked for advice on whether to buy an Apple notebook or a PC notebook. Each group has been asked to provide the family member with the specifications of the computer, the similarities and differences of each, and a summary of what is available from each computer. Find an advertisement for an iBook and a PC notebook; then create a report listing the hardware specifications provided for either, and then the "extras" that either notebook provides. Assume the family member is using this notebook for college and will require a word processing program, budgeting software, database software, and Internet access. If possible, include the advertised price of the notebook plus the cost of software that may need to be purchased for the notebook in order to meet these requirements.
- Have groups present their reports and discuss their recommendations.
- Describe and employ precautions and care of computer systems.
- Model the setup of a computer system.
- Have students create and summarize a diagram or demonstration of setting up a computer. M4, L4, CLS5, T1

Suggested Assessment Strategies:

- Use the writing rubric to evaluate reports.
- Have students create a file folder game or a puzzle that will teach elementary students how to set up a computer. If possible, students will go to a local elementary school and teach young students about the different parts of a computer and how to assemble a computer system.

Competency 3: Operate basic computer applications. CP1, CP2, CP3, CP4, CP5, CP6, CP7, CF2, CF3

Suggested Objectives:

a. Demonstrate a mastery of terminology related to computer applications.
b. Manipulate and control the Windows desktop, files, and disk.
c. Manipulate a window by using menus, icons, and keyboard shortcut.
d. Create a file management system.
e. Distinguish between system software and application software.
f. Identify how software and hardware work together to perform computing tasks.
g. Identify different types of software, general concepts related to software categories, and the tasks to which each type of software is most suited or not suited.

Suggested Teaching Strategies:

- Use a multimedia presentation to give a detailed overview of the computer operating system. Have students use the Internet and a word processing application to create a "Computer Information Fact Sheet" that defines and illustrates terms associated with computer

applications and the Graphical User Interface (GUI), e.g., file extensions, click, right click/control click, double click, click and drag, pull-down (drop-down), window, minimize and maximize, restore, icon, file, file name, folder, menu, menu bar, operating system, application software, overwrite, scroll bar, scroll wheel, shortcut, toolbars, and status bar. T1, CLS5

- Invite a guest speaker (e.g., from a doctor's office, school central office, bank, etc.) to discuss with students the importance of traditional file management. Next, the teacher will discuss the importance of managing electronic files. Have students determine and create the most efficient file management system for their work in ICT I. Have students generate a graphic organizer that compares and contrasts a traditional filing system and an electronic filing system. R6, R7, L4, M2, M4, CLS5
- Have students compile a price list of operating systems and application software that could be used in their ICT I lab. Once they decide on the best operating and application software for their lab, have them update accessibility budget from Unit 2, Competency 1. M5, R6, CLS2, CLS5, T1, T6
- As an integrated project with the English and history teacher and as a final project, have students research and compose a biographical report on a leader in technology (i.e., Bill Gates, Carly Fiorina, Steve Wozniak, Steve Jobs, Tim Berners-Lee, and Meg Whitman). If appropriate, allow students to use word processing or multimedia presentation applications to publish and present their report. M3, M5, L1, L2, L3, L4, R5, R6, R7, CLS1, T3

Suggested Assessment Strategies:

- Written vocabulary and windows test.
- Graphic organizer checklist.
- Updated budget from Unit 2, Competency 1.
- Evaluate each student's report for ideas, organization, and voice using the writing rubric from Unit 1.

Competency 4: Exercise sound reasoning in understanding and making complex choices about working with information technology and people with disabilities. CP1, CP2, CP3, CP4, CP5, CP6, CP7,

Suggested Objectives:

a. Demonstrate an appreciation and respect for diversity.
   Apply the components of good teamwork including team dynamics, states of team growth, and working through team problems.

Suggested Teaching Strategies:

- Have students return to their groups to read the "The New Technology Teacher" case study. Have students discuss and come to a solution to each of the questions listed below the case study. R5, R6, CLS4, CLS5
- Have teams report their solutions by composing and presenting a haiku, poem, rhyme, or rap song, which will summarize the case study and explain the solutions to class members. L4, M1, CLS4, CLS5

Suggested Assessment Strategies:

- Classroom participation and teacher observation.

Suggested Rubrics and Checklists

Information Technology in Education Accessibility Checklist

NAME: _____ **DATE:** _____ **PERIOD:** _____

Physical Environment			
Computer labs and technology-equipped classrooms are physically accessible to wheelchair users.			
Computer labs and technology-equipped classrooms are physically accessible to users with visual impairments.			
There are quiet work and/or meeting areas where noise and other distractions are minimized, or facility rules are in place (e.g., no cell phone use) to minimize noise.			
Computer Hardware and Software			
When we purchase computer hardware, we take steps to assure it is accessible.			
When we purchase computer software, we take steps to assure it is accessible.			
Operating systems built-in accessibility features are available by default.			
Users can customize their desktop settings in our public computing environment.			
Web Sites			
Our official (centrally supported) web sites are accessible (i.e., compliant with established web accessibility guidelines or standards).			
We have a system in place for monitoring and improving the accessibility of our web content.			
Multimedia			
When we purchase multimedia products, we take steps to ensure they include captions and audio descriptions.			
We have a system in place for captioning any multimedia products that we create internally.			
We have a system in place for adding audio description to any multimedia products that we create internally.			

Our televisions are capable of displaying closed captions.			
Our video projectors are capable of transmitting closed captions.			
Our instructors and staff are trained on how to turn on captions, or clear instructions accompany the multimedia viewing equipment.			
Telecommunications Products			
If one or more public telephones are available, at least one is mounted at an accessible height.			
Self-Contained, Closed Products			
People using wheelchairs can reach the controls on our printers, scanners, copiers, and other similar devices.			
Whenever we purchase standalone IT products, our purchasing policies or procedures require that we consider the accessibility of available products.			
Information Resources			
In our publications, we include a statement about our commitment to access and procedures for requesting disability-related accommodations.			
All printed publications are available (immediately or in a timely manner) in alternate formats such as Braille, large print, and electronic text.			
Our publicly available printed materials are within easy reach from a variety of heights and without furniture blocking access.			
Assistive Technology and Individual Accommodations			
A variety of hardware and software based assistive technologies are readily available for students with disabilities.			
We have a procedure to assure a quick response to requests for disability-related accommodations.			
We have a designated staff member and/or committee who assures that services are accessible to students with disabilities and responds to requests for accommodations.			
Computer support and help desk staff are trained in the maintenance and use of assistive technology.			
Instructors and staff receive training on how to respond to requests for disability-related accommodations.			

Information Technology in Education Accessibility Checklist (http://www.washington.edu/accessit/it-checklist/)

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Rehabilitation Research of the U.S. Department of Education (grant #H133D010306). However, the contents do not necessarily represent the policy of the Department of Education, and you should not assume their endorsement.

Class Newsletter Rubric

NAME: _____ **DATE:** _____ **PERIOD:** _____

	Awesome	Clever	Satisfactory	Acceptable	Total Points
Completed article on time.	10	9	8	7	
Wrote newsworthy article on a topic of interest.	20	19	18	17	
Added digital photograph that complemented article well.	20	19	18	17	
Formatted article using desktop publishing software.	20	19	18	17	
Organized presentation of article and photograph in a unified whole.	10	9	8	7	
Wrote well-developed descriptive paragraph for written assessment.	20	19	18	17	

Copyright Information:
http://imet.csus.edu/imet2/nicher/toohotweb quest/Easley_CD1_Set4_Class_Newsletter_Rubric.doc
Jan Easley, CD 1, Set 4
Creating a Class Newsletter
C·R·E·A·T·E for Mississippi

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The New Technology Teacher Case Study

NAME: _____ **DATE:** _____ **PERIOD:** _____

By Robin Parker

Ms. Green has just accepted a position teaching a 7th grade computer class at Sunnytown Middle School. Ms. Green will teach 7th graders basic computer knowledge, keyboarding, word processing applications, spreadsheet applications, and telecommunications. This is her first teaching position and she is excited to implement all of the teaching methods she learned in college.

She arrives to her classroom one week before class starts to get her lab in order for the upcoming school year. As she is rearranging the student work stations, her principal, Mr. Cloudy, knocks on her door. He informs her that she will be teaching a student who is paralyzed and does not have the use of his hands. Mr. Cloudy reminds Ms. Green that this student has an exceptional academic record and his parents are expecting their child to be treated no differently than other children.

Questions:

1. Should the student be treated differently from other students because of his disability?

2. Are the parents expecting too much from the new teacher?

3. How is the student who does not have use of his hands going to learn to keyboard?

4. Why is it important for this student to learn the content of this 7th grade course?

5. What assistive technologies can this teacher use to help this student meet the same expectations as his classmates?

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Checklist for Evaluation of Presentation

NAME: _____ **DATE:** _____ **PERIOD:** _____

1	Appropriate number of slides was included.	10	
2	Proper design elements were used.	20	
3	Presentation included the motto, creed, emblem, colors, theme, and history of the organization.	30	
4	Information was accurate and complete.	30	
5	Student worked well with team members.	5	
6	Student contributed to the finished product.	5	
	TOTAL SCORE	100	

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC3 2005 Standards

CF1 Computer Hardware
CF2 Computer Software
CF3 Using an Operating System

Academic Standards

M1 Patterns and Algebraic Thinking
M2 Data Analysis and Prediction
M3 Measurement
M4 Geometric Concepts
M5 Number Sense
R1 Context Clues (Semantic)
R4 Vocabulary
R5 Main Idea and Details (Textual)
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L1 Editing: Capitalization and Punctuation
L2 Spelling
L3 Sentence Structure (Syntactic)
L4 Meaning (Semantic)

21st Century Literacy Skills

CLS1 Global Awareness
CLS2 Financial, Economic, and Business Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T1 Creativity and Innovation
T2 Communication and Collaboration
T3 Research and Information Fluency

T4 Critical Thinking, Problem Solving, and Decision Making
T5 Digital Citizenship
T6 Technology Operations and Concepts

Suggested References

Barnett, R. (2004). *Internal parts of a personal computer.* Retrieved September 15, 2005, from http://www.berksiu.k12.pa.us/web quest/BarnettR/index.htm

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U.S. Census Bureau. (n.d.). *Mississippi quick facts from the U.S. Census Bureau.* Retrieved September 2, 2005, from http://quickfacts.census.gov/qfd/states/28000.html

For additional references, activities, and web resources, please refer to: Information and Computer Technology B.R.I.D.G.E. Web site: http://www.rcu.blackboard.com (Available only to registered users).

Competency 1: Explain telecommunication applications. CP1, CP2, CP3, CP4, CP5, CP6, CP7, LO3

Suggested Objectives:

a. Define terminology associated with telecommunications.
b. Describe the different services available on the Internet.
c. Review "appropriate use" policies related to telecommunications.
d. Identify different types of information sources on the Internet.
e. Use a web browsing application.
f. Search the Internet for information.
Introduce students to that Blackboard ® website (if you have not done so already)

Suggested Teaching Strategies:

- Revisit the school and/or classroom Acceptable Use Policy. CLS5, T2
- Have students use the Internet to research netiquette. Have students create a "Netiquette Fact Sheet" to use while interacting with peers, experts, and other audiences. R5, R6. L4, T2, T5
- Use presentation equipment to introduce terminology such as telecommunications, Internet, electronic mail, World Wide Web, facsimile, browser, bookmarks, search engine, netiquette, download and upload, modem, LAN, WAN, router, URL (uniform resource locator), HTTP (hypertext transfer protocol), address bar (extensions), FTP (file transfer protocol), discussion boards, weblog/blogs, wiki, IM (instant message), etc. Prepare for vocabulary test using written activity or game. R1, R4
- Utilize a multimedia presentation to identify the services of the Internet (World Wide Web, e-mail, newsgroups, listservs, Internet meetings, distance learning, etc.).
- Refer to lesson in Unit 3 concerning ethics and Internet usage. Review the material and apply an appropriate teacher-made activity. T5
- Show students how to add a web page to the favorites list. Also show students how to use the history list to access web pages.

Suggested Assessment Strategies:

- Written test.
- Student participation.

Competency 2: Utilize applications of telecommunications. CP1, CP2, CP3, CP4, CP5, CP6, CP7, LO2, LO3

Suggested Objectives:

a. Identify how electronic mail works.
b. Identify and follow how to use an electronic mail application.
c. Identify the appropriate use of electronic mail and netiquette.
d. Send and receive electronic mail messages.

e. Use an address book.
f. Organize and search for electronic mail messages.

Suggested Teaching Strategies:

- Allow students to complete a teacher-created web quest activity to gain a solid foundation e-mail. Make sure that students know the difference between SMTP, POP3, IMAP, and HTTP e-mail protocols.
- Make sure students have a strong understanding of the proper way to compose emails using e-mail etiquette. L1, L2. L3, L4, CLS5, T4
- Have students create an e-mail account. CLS5, T4
- Discuss e-mail security issues such as junk mail, spam, and viruses. CLS5, T2, T4
- Have students evaluate a list of guidelines that distinguish between safe and potentially harmful e-mails. Revisit social and ethical issues introduced in Unit 3. CLS5, T2, T4
- Have students practice or observe blocking e-mails from unsafe senders. CLS5, T2, T4
- Show students a personal information manager application, such as Microsoft Outlook® or the Blackboard® Messages feature. Have students take notes as the teacher discusses the different components of the personal information manager application screen. CLS5, T4
- Have students send and receive e-mail messages using a personal information manager application. Have students send e-mail attachments and create an electronic signature using a personal information manager application. CLS5, T4
- Have students add their classmates to their personal information manager applications address book. CLS5, T4
- Explain folders such as inbox, sent items, deleted items, drafts, and outbox. Students will create folders for their friends, family, and teachers. Have students organize e-mail messages into folders. CLS5, T4
- If appropriate, communicate with students throughout the year using e-mail. Require the students to submit multiple assignments to teacher using e-mail. If students do not have access to e-mail, have them communicate throughout the year using a course management website, such as the Blackboard® Learning System. CLS5, T2, T4

Suggested Assessment Strategies:

- Written test.
- Student participation using e-mail.

Competency 3: Publish and interact with peers, experts, and other audiences using telecommunications.
CP1, CP2, CP3, CP4, CP5, CP6, CP7, LO2, LO3

Suggested Objectives:

a. Post information to a discussion board.
b. Join and participate in the ICT student listserv.
c. Use an appropriate, supervised chat room to communicate with peers, experts, and other approved audiences.
d. Use electronic collaborative learning.

Suggested Teaching Strategies:

- If accessible, the teacher will create a Blackboard® web site for students to access. Students will start posting journal entries to the Blackboard® discussion board. When students have extra time throughout the school year, they can enter the Blackboard® virtual classroom and practice keyboarding skills. This activity should be carried out throughout the school year. L4, CLS5, T2, T4
- Invite guest speakers from a local news or television station to participate in a classroom chat session using the Blackboard® chat room. Have students write a journal entry about their experience. CLS5, T4

Suggested Assessment Strategies:

- Evaluate journal entries that are posted on the Blackboard® discussion board.
- Rubric or checklist for each audiovisual technology activity found at http://www.uwstout.edu/soe/profdev/videorubric.html

Competency 4: Understand technology used to locate, evaluate, and collect information from a variety of sources. CP1, CP2, CP3, CP4, CP5, CP6, CP7, LO3

Suggested Objectives:

a. Understand basic terminology related to locating, evaluating, and collecting information from a variety of sources.
b. Create a Web Page evaluation tool.

Suggested Teaching Strategies:

- Provide instruction in accessing and searching the Internet properly. Show students different types of search engines such as Yahoo, Google, MSN, Excite, Ask Jeeves, etc. Show students how to use online databases such as MAGNOLIA and Ebsco Host.
- Demonstrate how to add a web page to the favorites list and how to utilize the history list to access web pages.
- Model how to print a web page by using the print preview button.
- Show students how to cite a personal web page, an article in an online magazine, an electronic article from a database such as MAGNOLIA, and a posting from a discussion list using the Modern Language Association (MLA) guidelines.
- Have students search the Internet to find samples of web site evaluation tools. Have students create their own web site evaluation tool to use when they evaluate web sites. CLS4, CLS5, T5, T6

Suggested Assessment Strategies:

- Teacher observation.
- The teacher will assess the web site evaluation tool for accuracy. This tool will be used to evaluate future web sites.

Competency 5: Utilize technology to locate, evaluate, and collect information from a variety of sources. CP1, CP2, CP3, CP4, CP5, CP6, CP7, LO3

Suggested Objectives:

a. Use technology tools to process data and report results.
b. Use technology to submit information.

Suggested Teaching Strategies:

- Perform integrated academic searches to locate information (reports, online tutorials, reference materials, maps, weather information, etc.). Have students select a topic to research and find and correctly cite 10 electronic sources to support that topic. These sources could be used in a later unit. [CLS4, CLS5, T5, T6]
- Have students develop an outline or a graphic organizer of the information.[L4, R5, R6, R7]
- Students will submit their electronic sources to the ICT I teacher and the academic teacher via the Blackboard® web site or e-mail. [T4]
- As an enrichment activity, allow students to compose a song, rhyme, or jingle to teach others about how they found their sources and about the information they found. [CLS4]

Suggested Assessment Strategies:

- Teacher observation.
- Evaluate the student work using a rubric or checklist created with the integrated academic teacher or the rubric from Unit 1.

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC3 2005 Standards

CF1 Computer Hardware
CF2 Computer Software
CF3 Using an Operating System
KA2 Word Processing Functions
LO4 The Impact of Computing and the Internet on Society

Academic Standards

M2 Data Analysis and Prediction
M5 Number Sense
R1 Context Clues (Semantic)
R4 Vocabulary
R5 Main Idea and Details (Textual)
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L4 Meaning (Semantic)

21st Century Literacy Skills

CLS1 Global Awareness
CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T2 Communication and Collaboration
T3 Research and Information Fluency
T5 Digital Citizenship
T6 Technology Operations and Concepts

Suggested References

Barnett, R. (2004). *Internal parts of a personal computer.* Retrieved September 15, 2005, from http://www.berksiu.k12.pa.us/web quest/BarnettR/index.htm

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U.S. Census Bureau. (n.d.). *Mississippi quick facts from the U.S. Census Bureau.* Retrieved September 2, 2005, from http://quickfacts.census.gov/qfd/states/28000.html

For additional references, activities, and web resources, please refer to: Information and Computer Technology B.R.I.D.G.E. Web site: http://www.rcu.blackboard.com (Available only to registered users).

Competency 1: Perform keyboarding applications. CP1, CP2, CP3, CP4, CP5, CP6, CP7

Suggested Objectives:

a. Demonstrate proper hand, finger, and body position when using a keyboard (ongoing).
b. Use correct finger reaches from home row to top/bottom row keys (ongoing).
*Refer to the fingers as such: index (L1/R1), middle (L2/R2), ring (L3/R3), pinky (L4/R4) and thumb (RT).
c. Perform touch typing by keying words, sentences, and paragraphs (ongoing).
d. Demonstrate proper use of special keys such as the spacebar, enter/return, shift, tab, delete, backspace, arrow keys, ctrl, alt, home, insert, etc. (ongoing).
e. Use the top row of the keyboard for numeric keying (ongoing).
f. Use the numeric keypad to key numbers (ongoing).

Suggested Teaching Strategies:

- Have students identify the alphabetic and numeric keys and reaches. Correctly key by touch dictation exercises, conditioning practices, software exercises, and three-minute timed writings and a minimum of 30 NWAM by the end of the year. During the first nine weeks employ intensive keyboarding instruction with ongoing maintenance for the remainder of the school year, i.e., three-minute timed writings, and skill builder exercises. Have students record and graph (electronically or by using graphing paper) their progress using their ICT I notebook. To motivate students to reach their highest potential, create the Wall of Speed and Hall of Fame. Consider the following: M2, M5, R5, R7, CLS5
  - Take pictures of students at the beginning of year and use the pictures to graph the typing speed of students.
  - Net words on a three-minute timed writing determine student's picture placement on the Wall of Speed.
  - Pictures of students who achieve 70 net and above will be placed in a permanent Hall of Fame.
- Use drill practice (typing from copy) to provide many subject area testing/Mississippi Curriculum Test (MCT) connections such as:
  - Presidential facts
  - Electoral college
  - Science facts
  - States, state abbreviations, and county seats
  - Spacing and punctuation rules such as capitalization and editing guidelines. L1
  - Alphabet assignment.
  - Have students identify the numeric keypad and reaches.
  - Have students correctly key by touch the conditioning practices and software exercises.
- As an enrichment activity, have students complete a keyboarding web quest, such as: http://www.rcsd.ms/~arainwater/index_keyboardingWebquest.htm to learn more about the importance of keyboarding.

Suggested Assessment Strategies:

- Print and evaluate lesson reports and timed writings for speed and accuracy.
- Print and evaluate lesson reports for speed and accuracy.
- Keyboarding student self-assessment rubric.
- Keyboarding teacher assessment rubric.

Suggested Rubrics and Checklists

Keyboarding Self Assessment Rubric

NAME: _____ **DATE:** _____ **PERIOD:** _____

Upper Body Posture Body is centered and straight in front of the keyboard. Body is within hand span of the keyboard.				
Lower Body Posture Hips touch the back of the chair. Feet are flat on the floor.				
Hand/Finger Position Demonstrates correct hand position over home row. Strikes keys with tips of fingers.				
Palm Position Keeps palms off of the desk and/or keyboard.				
Typing Rhythm Maintains a steady timing rhythm.				
Accuracy Finished work is at an accurate rate of 95% of better.				
Speed Student maintains the average class typing pace of 30 net words per minute.				
Effort Students in on-task and focused.				
Add Up Your Overall Score				

Your Score: _____ Your Possible Score: _____

Grade: _____

How did you determine your grade? _____

_____

_____

Copyright Information:
Title: Keyboarding Basics, Unit 2
Web site: http://www.glencoe.com/sec/officetech/keyboarding/content/pdfs/Unit2Rubrics.pdf

Keyboarding Teacher Assessment Rubric/Checklist

NAME: _____ **DATE:** _____ **PERIOD:** _____

Demonstrates correct techniques for numeric and symbol keys (NETS 1b).				
Demonstrates proper keyboarding techniques (NETS 1b).				
Keys 30 net words a minute (NETS 1b).				
Demonstrates the ability to compose at the keyboard (NETS 3a).				
Learns capitalization rules (NETS 1b).				
Uses correct spacing before and after punctuation (NETS 1b).				
Demonstrates the correct touch-system techniques (NETS 1b).				
Fingers rest on the "Home Row" (A, S, D, F, J, K, L, ;), Space Bar, and Enter keys (NETS 1b).				

Copyright Information:
Title: Keyboarding Basics, Unit 2
Web site: http://www.glencoe.com/sec/officetech/keyboarding/content/pdfs/Unit2Rubrics.pdf

Key Mastery Checklist

NAME: _____ **DATE:** _____ **PERIOD:** _____

Write the date that the student masters the following keys.

Letters		Numbers & Symbols	Keypad
_____ A	_____ a	_____ 1	_____ 1
_____ B	_____ b	_____ 2	_____ 2
_____ C	_____ c	_____ 3	_____ 3
_____ D	_____ d	_____ 4	_____ 4
_____ E	_____ e	_____ 5	_____ 5
_____ F	_____ f	_____ 6	_____ 6
_____ G	_____ g	_____ 7	_____ 7
_____ H	_____ h	_____ 8	_____ 8
_____ I	_____ i	_____ 9	_____ 9
_____ J	_____ j	_____ 0	_____ /
_____ K	_____ k	_____ 1	_____ *
_____ L	_____ l	_____ !	_____ -
_____ M	_____ m	_____ @	_____ +
_____ N	_____ n	_____ #	_____ Enter
_____ O	_____ o	_____ $	
_____ P	_____ p	_____ %	
_____ Q	_____ q	_____ ^	
_____ R	_____ r	_____ &	
_____ S	_____ s	_____ *	
_____ T	_____ t	_____ (	
_____ U	_____ u	_____)	
_____ V	_____ v		
_____ W	_____ w		
_____ X	_____ x		
_____ Y	_____ y		
_____ Z	_____ z		

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC3 2005 Standards

LO2 Electronic Mail
LO3 Using the Internet

Academic Standards

M2 Data Analysis and Prediction
M5 Number Sense
R1 Context Clues (Semantic)
R4 Vocabulary
R5 Main Idea and Details (Textual)
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L1 Editing: Capitalization and Punctuation
L2 Spelling
L3 Sentence Structure (Syntactic)
L4 Meaning (Semantic)

21st Century Literacy Skills

CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T2 Communication and Collaboration
T4 Critical Thinking, Problem Solving, and Decision Making
T5 Digital Citizenship

Suggested References

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Competency 1: Perform basic word processing applications. CP1, CP2, CP3, CP4, CP5, CP6, CP7, CF2, KA1, KA2

Suggested Objectives:

a. Use basic word processing commands to create, format, and edit documents.
b. Start and exit a word processing application and utilize sources of online help.
c. Identify common on-screen elements of a word processing application.
d. Change application settings and manage files within a word processing application.
e. Perform common editing and formatting functions.
f. Perform common printing functions.

Suggested Teaching Strategies:

- Administer a pretest to determine student's word processing skills.
- Demonstrate and explain the word processing opening screen (window), to include menu bar and toolbars. Provide students with guided practice activities. CLS5, T3
- Demonstrate and explain how to use online help in a word processing application. CLS5, T3, T5
- Use web sites such as http://webster.commnet.edu/writing/symbols.htm to review editing and proofreading skills with students. Show students the editing and proofreading marks that will be used in ICT and share with them the editing evaluation tool that will be used throughout the ICT course. Have students work in teams to develop a classroom editing and proofreading checklist that will be used to evaluate future word processing projects. L1, L2
- Provide students with integrated activities to compose, format, and edit documents to include, but not be limited to, the following: L1, L2, L3, L4, M5, CLS5, T3
  - Commands to include: delete, insert, cursor movement, bold, italics, underline, cut, copy, paste, drag and drop, etc.
  - Text and document formatting such as setting line margins, page orientation, justification, headers and footers, line spacing, tabs, page breaks, section breaks, creating and formatting tables, text styles, diagrams and organizational charts, etc.
  - Editing and proofreading procedures such as find and replace, grammar check, spell check, etc.
- Show students how to create a folder, save a document, and print a document using a word processing application. CLS5, T1, T3
- Have students store files and retrieve them using various storage media (i.e., floppy disk, jump drive, hard drive, server drive, and/or CD-ROM). CLS5, T1, T3
- Have students develop and key job application packets that include a personal resume, a portfolio including computer-generated writing samples (e.g., cover/title page; table of contents; multi-page document to include headers, footers, section breaks, etc.). L1, L2, L3, L4, CLS4, CLS5, T1, T3

Suggested Assessment Strategies:

- Evaluate pretest and re-teach as needed.
- Monitor performance on student practice.
- Evaluate performance projects based on the editing checklist that the students created.

- Evaluate the job application packet using a peer evaluation rubric and a teacher evaluation rubric.

Competency 2: Utilize basic word processing skills to create business correspondence. CP1, CP2, CP3, CP4, CP5, CP6, CP7, KA1, KA2

Suggested Objectives:

a. Generate a hard copy of block-style business correspondence to include, but not limited to, a memo, personal/business letter, and letterhead.
b. Apply word processing applications to related academic skills in math, science, or communications.
c. Use advanced word processing skills to format and print a multi-page report in an integrated activity, following accepted referencing format using Modern Language Association (MLA) guidelines, including Works Cited page with hanging indents.

Suggested Teaching Strategies:

- Have students examine different styles of standard professional documents. The samples should represent a range of writing quality.
- Divide students into groups and have each group use the Internet and other writing style guides to research the following types of business documents: Response letter, complaint letter, employment reference letter, employee verification letter, bid solicitation letter, sales letter, customer service letter, procedures memo, request memo, summary memo, proposal memo, technical memo, status report memo, recommendation memo, office meeting agenda, office meeting minutes, job description, executive summary, marketing fact sheet, etc. Require students to communicate using the Blackboard® discussion board or e-mail to share their research. CLS4, CLS5, T3, T4, T5
- Have each group use an accepted format (e.g., Franklin Covey, MLA, etc.) to compose a report that includes the purpose of each document in a business environment, the steps on how to create the document, a description of when the document should be used, and a sample of the document. L1, L2, L3, L4, CLS4, CLS5, T3, T5, T6
- Have each group present their report to the class.

Suggested Assessment Strategies:

- Use the writing rubric from ICT I, Unit 1 to evaluate the multi-page report for ideas, organization, and voice.

Competency 3: Explain desktop publishing applications. CP1, CP2, CP3, CP4, CP5, CP6, CP7, CF2, CF3, KA1, KA2

Suggested Objectives:

a. Identify terminology and techniques associated with desktop publishing.
b. Evaluate desktop publishing documents.
Identify how desktop publishing is used in career pathways.

Suggested Teaching Strategies:

- Use presentation equipment to introduce desktop publishing terminology and techniques (i.e., columns, inserting graphics, resize and position graphics, inserting and formatting text boxes, etc.).
- Have students key in, illustrate, and print terminology. [T3]
- Have students critique the various examples and make notes on what should be done to turn the low quality desktop publishing designs into high quality desktop publishing designs. [M2, CLS4]
- Have students compile a list of different types of desktop publishing documents that are used in each career pathway. [L2, CLS1, CLS3]

Suggested Assessment Strategies:

- Written test.

Competency 4: Perform desktop publishing applications. [CP1, CP2, CP3, CP4, CP5, CP6, CP7, CF2, CF3, KA1, KA2, LO3]

Suggested Objectives:

a. Use drawing tools to create lines, circles, ovals, and rectangles.
b. Use text tools to create, insert, delete, replace, and move text.
c. Manipulate graphics and objects by moving, sizing, deleting, grouping, and changing order or color (lines or shapes).

Suggested Teaching Strategies:

- Demonstrate drawing tools, text tools, graphics, grouping, and changing order, text wrapping, washout, recolor, watermark, etc.
- Provide students with guided practice activities (geometric shapes, original valentine or greeting card, etc.). [M2, M3, M4, T3]

Suggested Assessment Strategies:

- Monitor guided practice.

Competency 5: Create a desktop publishing document. [CP1, CP2, CP3, CP4, CP5, CP6, CP7, CF2, CF3, KA1, KA2, LO3]

Suggested Objectives:

a. Apply desktop publishing applications to real-world activities.

Suggested Teaching Strategies:

- Have students take on the role of a restaurant owner opening a new business. The student will use desktop publishing skills (i.e. design themes, drawing tools, text tools, manipulation and inserting of graphics and text) to create a flyer, a tri-fold menu (brochure), business cards, and letterhead for the restaurant. All publications must have the same theme.
- Have students use the Internet to research career opportunities, educational requirements, pay scales, certifications, working conditions, etc. from their selected career. [L3, CLS1, CLS3]

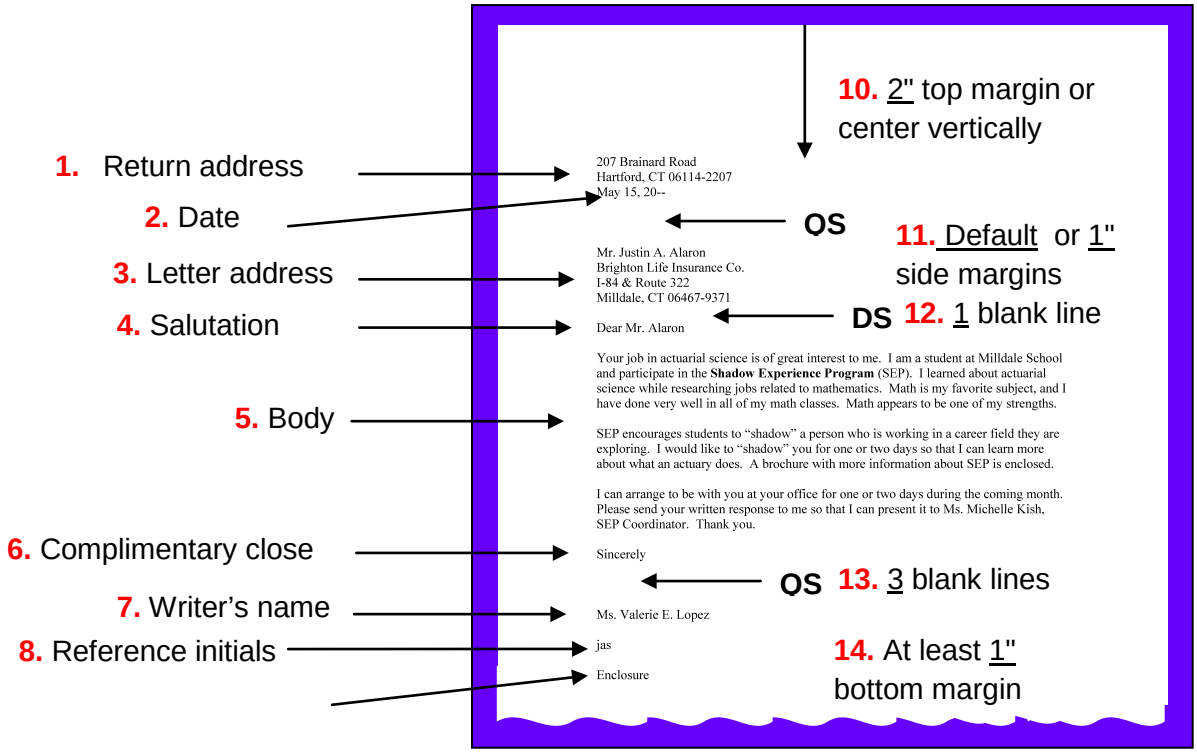
- Using the drawing tools, text tools, manipulation and inserting of graphics and text, have students research, develop, and compose a desktop publishing document related to that career. (e.g., non-profit organization brochure, disaster brochure, newsletter, blood drive flyers, etc.). [L1, L2, L3, L4, CLS2, CLS3, CLS4, CLS5, T3, T5, T6]
- Have students develop a creative piece of work that will be used to recruit individuals to the career that was researched.
- Have students compose and design greeting cards as a community service project (nursing home, children's home, military group, etc.). [L1, L2, L3, L4, CLS2, CLS3, CLS4, CLS5, T3, T5, T6]

Suggested Assessment Strategies:

- Work with the academic teacher to develop a rubric to grade student's completed assignment.
- Use peer evaluations to evaluate the quality of work and teamwork throughout the project.
- Ask members of the community who work in the field of arts, information, and communication technology to judge student creations.

Parts of a Personal – Business Letter Key

BLOCK LETTER STYLE



Write the information below on your handout:

UNDERSTANDING SPACING

Quadruple Spacing – (QS) Strike enter 4 times, there will be **3 blanks lines** between items that are quadruple spaced.

Double Spacing – (DS) Strike enter 2 times. There will be **1 blank line**

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC3 2005 Standards

CF2 Computer Software
KA1 Common Program Functions
KA2 Word Processing Functions

Academic Standards

M5 Number Sense
L1 Editing: Capitalization and Punctuation
L2 Spelling
L3 Sentence Structure (Syntactic)
L4 Meaning (Semantic)

21st Century Literacy Skills

CLS 4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T1 Creativity and Innovation
T3 Research and Information Fluency
T5 Digital Citizenship
T6 Technology Operations and Concepts

Suggested References

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For additional references, activities, and web resources, please refer to: Information and Computer Technology B.R.I.D.G.E. Web site: http://www.rcu.blackboard.com (Available only to registered users).

Competency 1: Explain multimedia presentation applications. CP1, CP2, CP3, CP4, CP5, CF2, KA1, KA2, KA4

Suggested Objectives:

a. Identify terminology related to presentation applications.
b. Display, describe, and print the components of a presentation window.

Suggested Teaching Strategies:

- Give students a pretest to determine the amount of experience and understanding they have in multimedia presentations.
- Use presentation equipment to introduce terminology such as multimedia presentation, slides, views, transition, animations, color scheme, background, etc. Prepare for vocabulary test using written activity or game. R1, R4
- Have students use a word processing application, the print screen feature, and drawing tools to label the components of the presentation window. CLS5, T1, T3, T6

Suggested Assessment Strategies:

- Written test.
- Teacher observation.

Competency 2: Create a multimedia presentation. CP1, CP2, CP3, CP4, CP5, CF2, KA1, KA2, KA4

Suggested Objectives:

a. Identify steps for creating presentations.
b. Determine strategies for success in multimedia projects.
c. Create a multimedia presentation.
d. Format a multimedia presentation.
e. Print a multimedia presentation.
f. Integrate word processing and multimedia presentation applications to create, edit, and print speaker notes.
Present a multimedia presentation.

Suggested Teaching Strategies:

- Have students use a word processing application or Inspiration© to create a "quick start" guide on presentation development (story map). T3
- Have students work in groups to research one of the following topics: R6, R7, L4, T5
  - Why you must have high quality presentation skills.
  - The most common mistakes a speaker makes.
  - Conquering nervousness while speaking publicly.
  - Different types of listening skills.

    - The importance of researching and analyzing your audience.
    - How to research materials for a presentation.
    - How to use visual aids effectively (tips for using color, graphics, and text).
    - How to handle difficult people in your audience.
- Students will edit fonts, alignments, clipart, colors, added effects, transitions, etc. L1, T3
- Have students: key and edit their speaker notes; send the speaker notes to a word processing software program; and format, edit, and print for handouts from the word processing document. L4, T3, T6
- Have students deliver their presentation.

Suggested Assessment Strategies:

- Teacher evaluation using assessment instrument.
- Teacher evaluation of printed and/or oral presentation.
- Use the Group Presentation Evaluation Rubric to evaluate student presentations.

Competency 3: Identify the appropriate uses of a digital camera.

Suggested Teaching Strategies:

- Have students work in groups to research web sites such as http://www.kodak.com/ to learn tips on how to take great pictures. Using the tips from their research, have students take 15–20 pictures that will illustrate a story that they are reading in their language arts class. R7, CLS4, CLS5, T5
- Create tutorial on how to use the classroom digital camera and transfer the pictures to their computer.
- If you don't have the funding for a classroom digital camera, try using the Pics4Learning collection of images. This online collection consists of thousands of images that have been donated by students, teachers, and amateur photographers and is copyright-friendly and free for use in education. http://www.pics4learning.com/

Suggested Assessment Strategies:

- Self and peer evaluation rubric for digital camera tips.
- Teacher observation.

Competency 4: Describe the basic operation principles of multimedia presentation accessories. CP1, CP2, CP3, CP4, CP5, CF1, CF2, KA1, KA4, LO3

Suggested Objectives:

a. Identify the appropriate use of presentation hardware tools such as an LCD projector and interactive white board.
b. Incorporate sound/voice in multimedia presentation.

Suggested Teaching Strategies:

- Demonstrate the use and operation of the classroom LCD projector.
- Allow students to use the pictures they have taken and a multimedia presentation application, such as PhotoStory®, to retell and illustrate the story. L4, R5, CLS5, T3

- Have students deliver presentations.
- Use software such as Audacity or built-in presentation features to add sound or voice to multimedia presentations.
- As an enrichment activity, have students work in teams to compose a short-story presentation that includes a script, text, sound, images, and video clips. Create it around the question, "What would it be like to stand beside Martin Luther King, Jr. as he looks over thousands of Americans, their faces full of hope, and begins his famous speech, 'I Have a Dream'?" **CLS1, CLS3, CLS4, CLS5, T1, T2, T3, T4, T5, T6**

Suggested Assessment Strategies:

- Self and peer evaluation rubric.
- Teacher evaluation rubric.

Suggested Rubrics and Checklists

Group Presentation Assessment Rubric

NAME: _____ **DATE:** _____ **PERIOD:** _____

Content	Clear, appropriate, and correct	Mostly clear, appropriate, and correct	Somewhat confusing, incorrect, or flawed	Confusing, incorrect, or flawed	
Clarity	Logical, interesting sequence	Logical sequence	Unclear sequence	No sequence	
Presentation	Clear voice and precise pronunciation	Clear voice and mostly correct pronunciation	Low voice and incorrect pronunciation	Mumbling and incorrect pronunciation	
Visual Aids	Attractive, accurate, grammatically correct	Adequate, mostly accurate, few grammatical errors	Poorly planned, somewhat accurate, some grammatical errors	Weak, inaccurate, many grammatical errors	
Length	Appropriate length	Slightly too long or short	Moderately too long or short	Extremely too long or short	
Participation	Well-balanced participation by all group members	All group members have significant participation	Most group members participate	One main speaker with little participation from other group members	
Eye Contact	Maintains eye contact, seldom looking at notes	Maintains eye contact most of time but frequently returns to notes	Occasionally uses eye contact but reads most of information	No eye contact because reading information	

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC3 2005 Standards

CF1 Computer Hardware
CF2 Computer Software
KA1 Common Program Functions
KA2 Word Processing Functions
DA4 Presentation Software
LO3 Using the Internet

Academic Standards

R1 Context Clues (Semantic)
R4 Vocabulary
R5 Main Idea and Details (Textual)
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L1 Editing: Capitalization and Punctuation
L4 Meaning (Semantic)

21st Century Literacy Skills

CLS1 Global Awareness
CLS2 Financial, Economic and Business Literacy
CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T1 Creativity and Innovation
T2 Communication and Collaboration
T3 Research and Information Fluency
T4 Critical Thinking, Problem Solving, and Decision Making
T5 Digital Citizenship
T6 Technology Operations and Concepts

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Shelly, G. B., Cashman, T. J., & Vermatt, M. E. (2006). *Discovering computers 2006: A gateway to information, web enhanced complete.* Boston: Thomson Course Technology.

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Competency 1: Explore foundation skills and knowledge of academic and technical literacy and the Mississippi Career Pathways Model. CP1, CP2, CP3, CP4, CP5, CP6, CP7

Suggested Objectives:

a. Explore the 7 Mississippi Career Pathways Model.
b. Explore Academic Foundations.
c. Explore Employability and Career Development.
d. Discuss colleges and university programs based on the Career Pathways Model.

Suggested Teaching Strategies:

- Have students visit http://redesign.rcu.msstate to learn about the Mississippi Career Pathways Model. Have students complete a career interest and aptitude inventory. Have students use Career software/Internet to search colleges and universities for programs related to their career of interest and aptitude. Resources could include http://www.bls.gov.k12. LO3, T5, R1, R4, R5, R6, R7, C1, CP2, CP3, CP4, CP5,
- Invite a guest speaker from local employment agency, local junior colleges, or four-year universities. Have students post comments and questions from the guest speaker on the Blackboard® discussion board for students to discuss information learned from research or from guest speakers. T4, L1, L2, L3, L4
- Have student create a Wiki for students to add colleges or universities with programs that support the Career Pathways Model T4, L1, L2, L3, L4

Suggested Assessment Strategies:

- Participation of presenters and class discussions.
- Grade students' participation in discussion board.
- Grade students' participation in Wiki.
-

Competency 2: Explore careers in each of the seven Mississippi Career Pathways.

Suggested Objectives:

- Use *Choices Explorer* ® to complete the 7th Grade Guideway.

Suggested Teaching Strategies:

- Guide students through the Choices Explorer ® 7th Grade Guideway to help them better define their role in career and technical education.
- Use software/Internet to complete a career research in the seven Mississippi Career Clusters. LO3, T5, R1, R4, R5, R6, R7
- Invite the secondary pathway teacher to the class to present information about secondary pathway course opportunities. Have students create a table using word processing software, to

be used as a running record of career researches, to organize important information about the each pathway. [KA2]

- Have students develop a Blog or Discussion Board to encourage students to share career information researched in this pathway. [T4, L1, L2, L3, L4]

Suggested Assessment Strategies:

- Use a teacher created checklist to grade table.
- Grade students' participation in blog or discussion board.

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

Academic Standards

R1 Context Clues (Semantic)
R4 Vocabulary
R5 Main Idea and Details (Textual)
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L1 Editing: Capitalization and Punctuation
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Unit 1: Safety and Orientation (Review and Reinforcement) (5 hours)

Competency 1: Identify course expectations, school policies, program policies, and safety procedures related to Information and Communication Technology II. CP1, CP2, CP3, CP4, CP5, CP6, CP7

Suggested Objectives:

a. Give a brief overview of the course. Explain to students what ICT II is, why it is important, and how it will be delivered.
b. Preview the school handbook, the technology acceptable use policy, and all other safety procedures for classroom level and building level.
   Preview course objectives and program policies.
c. Use *Choices Explorer* ® to complete the 8th Grade Guideway.

Suggested Teaching Strategies:

- Reintroduce career and technical education with a brief explanation of the difference between academic and vocational education. Once students gain a basic understanding of vocational education, discuss the importance of computer literacy education. Explain to students that they will work in groups to interview five adults in different work areas or five students who are in high school and/or college. From the interviews, they will dramatize the importance of a strong technology foundation in education or the world of work. Once students fully understand the expectations of the project, have them work as a class to develop a rubric to evaluate this project. CLS4, CLS5
- Explain to students the importance of safety and workplace skills. Share with students the classroom expectations (i.e., come to class every day, be on time, dress appropriately, have your supplies, work cooperatively with your classmates, clean your workstation before you leave, etc.).
- Using a multimedia presentation, discuss the school handbook, the technology acceptable use policy, classroom procedures, and all safety procedures for classroom level and building level.
- Discuss the course objectives, program policies, etc.
- Guide students through the Choices Explorer ® 8th Grade Guideway to help them better define their role in career and technical education.
- Create a separate directory for student assignments and a resource notebook at each computer station. Share this information with students and make sure they know how to use the directories and notebooks.

Suggested Assessment Strategies:

- Use the student-created rubric to evaluate the dramatizations.
- Use a rubric or checklist to evaluate students understanding of workplace skills and safety (ongoing on a weekly basis).
- Teacher assessment according to local policy such as written safety test, signed policies, etc.

Competency 2: Identify student learning styles, previous knowledge, and self-awareness. CP1, CP2, CP3, CP4,

CP5, CP6, CP7, CF2, CF3, KA1, KA2, LO3

Suggested Objectives:

a. Complete a pretest from Information and Communication Technology I to determine what skills students already have.
b. Research and discuss learning styles and their importance.
c. Understand the importance of self-awareness.

Suggested Teaching Strategies:

- Have the students recognize previous knowledge by completing a pretest to determine their computer skills, knowledge level, and keyboarding skills.
- Have students use the Internet web sites such as http://www.vark-learn.com and http://focusonyourchild.com/ to research learning styles and multiple intelligences. Have students determine student learning styles. If possible, have students compare the results from this year's learning style inventory and personality skill assessment to last year's results. M2, CLS4, CLS5, T3, T5, T6
- Find articles related to goal setting and time management. Using a text-based seminar, have students discuss the importance and process of setting goals and time management. Students will then set goals for the class (i.e., keyboarding GWAM goals, course grade goals, IC^3 certification goal, etc.). Have students complete "A Personal Agenda" each week to help them keep track of their overall course goals and course reflections. R5, R6, R7, CLS4, CLS5, T3
- Have students summarize their previous knowledge, learning styles, and goals in an autobiography and share their autobiography with classmates. L1, L2, L3, L4, CLS4, CLS5, T3
- Have students compose a "How I Can Help Others" report for the teacher. Students will include strategies that they can use when peer teaching to meet their classmates' learning styles. L4, M1, M2, CLS4, CLS5, T3

Suggested Assessment Strategies:

- Each week, have students update "A Personal Agenda" and send it to parents to improve classroom communication.
- Use a rubric to evaluate the student autobiography and "How I Can Help Others" guide.
- Require students to keep a journal of observations and investigations, and periodically evaluate their personal entries to assess progress toward achieving goals and key understandings of course work.

Competency 3: Participate in educational, occupational, and leadership opportunities. CP1, CP2, CP3, CP4, CP5, CP6, CP7, CF2, CF3, KA1, KA2, DA4, LO3, LO4

Suggested Objectives:

a. Identify and describe leadership opportunities available from student youth organizations (FBLA, Student MECA, Jr. Beta, local community organizations, etc.).

Suggested Teaching Strategies:

- Discuss leadership and opportunities for demonstrating leadership through school and

community youth organizations, including competitive events, award and degree programs, and committee work. Allow students to practice leadership in class and laboratory activities.

- Allow students to design, create, and present a project that demonstrates qualities of their favorite state, national, or global leader (i.e., poster, book report, multimedia presentation, flyer, etc.). L1, L2, L3, CLS1, CLS3, CLS4, CLS5, T3, T5, T6
- Have students present their project to classmates. In order to improve parental involvement, have students present their projects to parents and other community leaders at an open house.

Suggested Assessment Strategies:

- Use a rubric to evaluate participation in class.

Suggested Rubrics and Checklists

Text-Based Seminar

NAME: _____ **DATE:** _____ **PERIOD:** _____

Purpose:

Explore how the author conveys his or her message to the intended audience.

- Refer to a particular place in the text before making your comment to the class (let everyone find it first).
- Use the rule of three (three people must speak before you can speak again).
- Respect everybody else's contributions by listening actively.
- Listen to what your peers SAY; then respond to what they said; follow up on it; build on it.

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A Weekly Learning Agenda

NAME: _____ **DATE:** _____ **PERIOD:** _____

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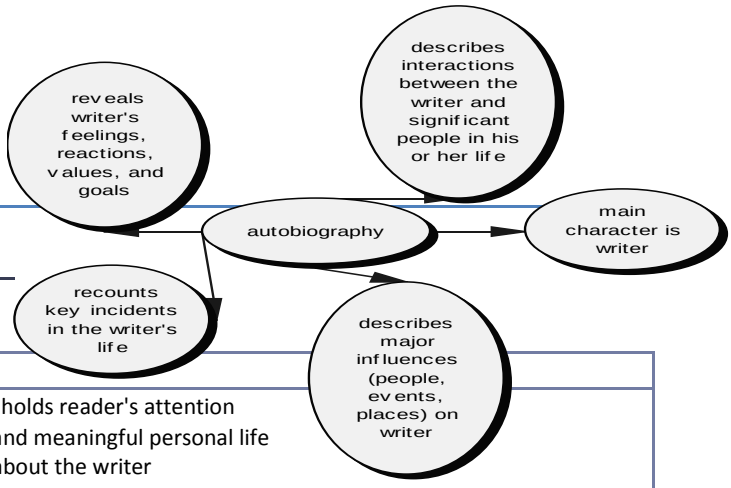
Autobiography Rubric



NAME: _____

DATE: _____ **PERIOD:** _____

STRONG 100-94 Shows control and strength in this trait; many strengths present.	• Paper clear and focused; holds reader's attention • Paper contains relevant and meaningful personal life details and descriptions about the writer • Sequencing is logical • Strong beginning, middle, and end • Thoughtful transitions connect ideas
COMPETENT 93-85 For most part, strengths outweigh weaknesses; revision is needed.	• Paper fairly clear; focus is occasionally inconsistent but readable • Some personal life details and descriptions present from writer's life • Sequencing shows logic for most part • Good beginning, middle, and end • *Most* transitions work well; some vague
DEVELOPING 84-76 Strengths and need for revision about equal; about halfway there!	• Writer beginning to develop topic but development is basic or too broad; reader has difficulty following the story • Personal life details and descriptions loosely connected; ineffective transitions; seems random • Sequencing shows limited control—not enough that it consistently supports ideas • Weak beginning, middle, or end
EMERGING 75-70 Need for revision outweighs strengths; isolated instances hint at what writer has in mind.	• Paper has limited sense of purpose or focus; some portions of text most confusing to the reader • Some personal life details and descriptions are related but not well detailed • Sequencing loose and hard to follow • Weak or nonexistent beginning, middle, or end
NOT YET! 69-60 A bare beginning; writer not yet showing clear control in this trait.	• Paper has no clear sense of purpose or focus; the text is very difficult for reader to understand • Personal life details and descriptions are limited or unclear, or the length is not adequate for development • Sequencing is nonexistent; no clear beginning, middle, or end • Ideas not connected; awkward; seem strung together in random fashion • Text seems to have no real point
NO ATTEMPT – 0	• No attempt

Feedback/Comments:

_____

_____

_____

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Dramatization Teacher Evaluation Rubric

NAME: _____ **DATE:** _____ **PERIOD:** _____

Excellent 4	Good 3	Satisfactory 2	Needs Improvement 1
Research of Events			
The student uses a word processing program to produce a script and biography (APA style). A script with a biography is submitted to the teacher. The script is free of errors.	The student uses a word processing program to produce a script and biography (APA style). A script with a biography is submitted to the teacher.	The student submits a handwritten script and biography (APA style) to the teacher.	The student submits a handwritten script and biography (APA style) to the teacher. A script is submitted to the teacher. No biography is included.
Characters			
The student uses a word processing program to produce a summary and historical account of each character in the script. A narrator gives a brief description to audience members before the dramatization begins.	The student submits a handwritten summary and historical account of each character in the script. A narrator gives a brief description to audience members before the dramatization begins.	The student submits a handwritten summary and historical account of each character in the script.	A summary or historical account of each character is not submitted.
Content			
The story is retold completely with all major events included. A problem and a solution are included in the content.	Most events are dramatized. The story is easy to follow. A problem and a solution are included in the content.	The story events are not in sequence and are hard to follow. A problem is included in the content.	The story events are not in sequence and are hard to follow.
Dramatizations			
All actors and actresses act out the script with proper volume and expression. Relevant props and costumes are used.	All actors and actresses act out the script. Props and costumes are used.	All actors and actresses act out the script. Props and costumes are lacking.	All actors and actresses read the script to the audience. There are no props or costumes.
Participation			
All participants are actively involved in the dramatization.	Most participants are actively involved in the dramatization.	Many participants are not actively involved in the dramatization.	Some people in the group do not involve themselves in the dramatization.

Dramatization Peer Evaluation Rubric

NAME: _____ **DATE:** _____ **PERIOD:** _____

Directions: Write Yes or No in the blank before each statement.

_____ A narrator gives a brief description of each character to audience members before the dramatization begins.

_____ I can follow the story's events.

_____ I can identify the story's problem.

_____ I can identify the story's solution.

_____ The actors spoke loud enough.

_____ The actors spoke with expression.

_____ The props and costumes fit the play.

_____ All students were actively involved in the play.

Group Member Names:

_____

_____

_____

_____

Evaluator(s):

_____

_____

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Workplace Skills Weekly Checklist

NAME: _____ **DATE:** _____ **PERIOD:** _____

Behavior Skill	Never	Rarely	Most of the Time	Always
On Time and Prepared				
1. Arrives to class on time				
2. Brings necessary materials				
3. Completes homework				
Respects Peers				
1. Respects others' property				
2. Listens to peers				
3. Responds appropriately to peers				
4. Respects others' opinions				
5. Refrains from abusive language				
Respects Teachers/Staff				
1. Follows directions				
2. Listens to teacher and staff				
3. Accepts responsibility for actions				
Demonstrates Appropriate Character Traits				
1. Demonstrates positive character traits (kindness, trustworthy, and honesty)				
2. Demonstrates productive character traits (patient, thorough, and hardworking)				
3. Demonstrates a level of concern for others				
Demonstrates a Level of Concern for Learning				
1. Remains on task				
2. Allows others to remain on task				

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC3 2005 Standards

CF2 Computer Software
CF3 Using an Operating System
KA1 Common Program Functions
KA2 Word Processing Functions
DA4 Presentation Software
LO3 Using the Internet
LO4 The Impact of Computing and the Internet on Society

Academic Standards

M1 Patterns and Algebraic Thinking
M2 Data Analysis and Prediction
R5 Main Idea and Details (Textual)
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L1 Editing: Capitalization and Punctuation
L2 Spelling
L3 Sentence Structure (Syntactic)
L4 Meaning (Semantic)

21st Century Literacy Skills

CLS1 Global Awareness
CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T3 Research and Information Fluency
T5 Digital Citizenship
T6 Technology Operations and Concepts

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For additional references, activities, and web resources, please refer to: Information and Computer Technology B.R.I.D.G.E. Web site: http://www.rcu.blackboard.com (Available only to registered users).

Competency 1: Perform basic keyboarding techniques (ongoing). CP1, CP2, CP3, CP4, CP5, CF2, CF3, KA1, KA2

Suggested Objectives:

a. Perform proper keyboarding techniques.
b. Develop speed and accuracy.

Suggested Teaching Strategies:

- Demonstrate correct keyboarding techniques, and have students practice the techniques.
- Provide 5-minute timed writings to allow students to increase speed and accuracy at 40 NWAM. M1, M2, M3, M5, CLS5, T3

Suggested Assessment Strategies:

- Use a keyboarding checklist to evaluate student performance.
- Assess student performance using a standardized or teacher-made grading chart.

Competency 2: Utilize speech recognition software (ongoing). CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, KA2, KA3, DA4

Suggested Objectives:

a. Complete initial training.
b. Create business documents by dictating voice commands and text.
c. Format/edit text and navigate in documents utilizing voice commands.

Suggested Teaching Strategies:

- Provide initial training on the software through demonstration and guided practice.
- Have students use speech recognition software to input information into word processing, spreadsheet, and multimedia presentation documents. CLS5, T3
- Have students use the writing process to create business documents, such as a letter, memo, technical report, or other type of written report, by dictating voice commands and text. L1, L2, L3, L4, CLS2
- Demonstrate how to format/edit text and navigate within documents utilizing voice commands.

Suggested Assessment Strategies:

- Have students dictate documents using voice commands. Assess performance using teacher observation/checklist/rubric.
- Have students dictate documents using voice commands. Assess performance using teacher observation/checklist/rubric.
- Have students format/edit text and navigate within documents using voice commands. Assess performance using teacher observation/checklist/rubric.

Competency 3: Utilize handwriting recognition software (ongoing). CP1, CP2, CP3, CP4, CP5, CF2, CF3, KA1, KA2, KA3, DA4

Suggested Objectives:

a. Start and adjust the writing pad.
b. Input data and create documents with handwriting recognition tools.
c. Utilize handwriting recognition tools to correct, edit, and format text.

Suggested Teaching Strategies:

- Demonstrate how to start and adjust the writing pad.
- Demonstrate how to utilize handwriting recognition tools to correct, edit, and format text.
- Have students work in groups to create writing pad adjustment checklists. Have students use this checklist to evaluate themselves when they are using writing tablets.
- Have students input data and create word processing, spreadsheet, and multimedia presentation documents with handwriting recognition tools. CLS5, T3

Suggested Assessment Strategies:

- Have students start and adjust the writing pad. Assess performance using the student-created checklist.

Competency 4: Develop, implement, and communicate using different input technologies. CP5, CF2, CF3, KA1, KA2, KA3, DA4

Suggested Objectives:

- Use different input applications to develop, implement, and communicate information to others.

Suggested Teaching Strategies:

- Ask a guest speaker from the medical field to demonstrate how technology is used in his/her daily tasks.
- Have students use the Internet to locate and download regional and global data about health issues such as blood pressure, cholesterol, flexibility, heart rate, body mass index, etc. CLS1, CLS4, CLS5, T3, T5, T6
- Have students use speech and handwriting recognition software and a spreadsheet application program to prepare graphs comparing these two data sets. M2, CLS4, CLS5, T3, T5
- Have students use the keyboard and mouse to develop a multimedia presentation. Make sure to include the graphs that were developed using the spreadsheet application program. M2, M5, L4, CLS4, CLS5, T3, T5
- If applicable, have students e-mail their presentation to the teacher. CLS4, CLS5, T3, T4, T5

Suggested Assessment Strategies:

- Using the tuning protocol, allow students to peer edit each other's spreadsheet and presentation.

- Use a checklist to evaluate student spreadsheet and presentations.

Suggested Rubrics and Checklists

The Tuning Protocol

The tuning protocol is an awesome tool to help you look at your work (or your peer's work) critically. The goal here is to generate ideas for improving the work, to deepen understanding, and to communicate more effectively. While participating in this structured protocol, it is important to remember to set and follow group norms and assume roles such as facilitator (team captain), presenter, timekeeper, recorder, and reporter.

1. Facilitator (team captain) brings the group together and reviews the protocol goals, guidelines, and schedule. **(one to two minutes)**

2. The presenter of the work presents the following information;
   - Context of assignment (what class is like and what content is being studied)
   - Sample of student work
   - Copy of the assignment with goals and grading criteria (rubric)
   - Any questions you have about your work (what you could have done differently, any misconceptions you might have, etc.) **(five to ten minutes)**

3. Participants will have the opportunity to ask brief questions about the work being presented (factual questions to provide more information about the work) **(five minutes)**

4. Participants will silently examine the student work, making notes about what seems "in tune" with learning goals and assignment criteria and suggestions for "tuning." Participants will jot down warm and cool feedback along with suggestions for tuning. (NOTE: Consider making notes on post-it pages so presenter can keep them). **(five to ten minutes)**

5. The presenter will move away from the table but sit close enough to listen and take notes as the work is discussed. Group members begin by sharing warm feedback (positive points about the work) before moving into cooler feedback and suggestions for improvement. At this point, the participants are engaging in dialog about the work and the presenter is simply making notes about what he or she hears. **(ten to fifteen minutes)**

6. The presenter then rejoins the group and shares the information he or she received while listening to the group discuss the work. This is NOT a time to defend or argue, but a time to reflect on the suggestions and feedback from the whole group. **(five minutes)**

7. Facilitator will lead a very short open discussion of the tuning experience to debrief the process. What could have been handled differently that may have made the protocol more effective? Did the group meet its goal? Did the presenter receive valuable, meaningful feedback in a positive manner? **(three to five minutes)**

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC³ 2005 Standards

CF2 Computer Software
CF3 Using an Operating System
KA1 Common Program Functions
KA2 Word Processing Functions
KA3 Spreadsheet Functions
DA4 Presentation Software
LO3 Using the Internet
LO4 The Impact of Computing and the Internet on Society

Academic Standards

M1 Patterns and Algebraic Thinking
M2 Data Analysis and Prediction
M3 Measurement
M5 Number Sense
L1 Editing: Capitalization and Punctuation
L2 Spelling
L3 Sentence Structure (Syntactic)
L4 Meaning (Semantic)

21st Century Learning skills

CLS1 Global Awareness
CLS2 Financial, Economic, and Business Literacy
CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T3 Research and Information Fluency
T4 Critical Thinking, Problem Solving, and Decision Making
T6 Technology Operations and Concepts

T5 Digital Citizenship

Suggested References

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Competency 1: Explain spreadsheet applications. CP1, CP2, CP3, CP4, CP5, CF2, KA1, KA2

Suggested Objectives:

a. Identify and key terminology used with spreadsheet applications.
b. Identify the basic components of a spreadsheet application screen.
c. Research, key, illustrate, and print terminology related to spreadsheet applications.

Suggested Teaching Strategies:

- Use presentation equipment to introduce terminology such as spreadsheet, workbook, cell, cell reference, merge, range, page orientation, fill handle, formulas, functions, borders button, left align button, right align button, center align button, currency style button, fill color button, enter button, font color button, format painter button, print preview button, auto sum button, insert function button, sort ascending button, sort descending button, chart, bar chart, data labels, data range, legend, line chart, pie chart, x-axis, y-axis, etc. R1, R4, M1, M2, M3
- Demonstrate basic components of a spreadsheet application as students take notes.
- Have students use the Internet and word processing software to locate, copy, and paste the definitions, insert a visual representation, and print terminology. Prepare for vocabulary test using written activity or game. R1, R4, CLS5, T3, T6

Suggested Assessment Strategies:

- Completed term illustration and definition activity.
- Written Test.

Competency 2: Perform spreadsheet applications. CP1, CP2, CP3, CP4, CP5, CF2, KA3

Suggested Objectives:

a. Demonstrate the use of basic spreadsheet format commands.
b. Write formulas using basic arithmetic operations.
c. Demonstrate the use of basic spreadsheet functions.
d. Modify worksheet data.
e. Structure and format data in a worksheet.
f. Sort and manipulate data using formulas and functions.
g. Create and modify charts in a worksheet.
h. Print a worksheet.

Suggested Teaching Strategies:

- Show students how to input, organize, format, and manipulate data in a spreadsheet.
- Have students use performance exercise to create and format a spreadsheet to include changing column width, formatting contents of a cell, merging cells, auto formatting, etc. CLS5, T3

- Have students use performance exercise to write formulas using the four basic arithmetic operations (addition, subtraction, multiplication, and division). M1, M5, CLS5, T3
- Have students use performance exercise to demonstrate the use of basic spreadsheet functions to include sum, maximum, minimum, count, now, round, average, etc. M1, M2, M3, CLS5, T3
- Have students work in groups and peer teach each other on how to create and graph a simple spreadsheet related to math or science (i.e., grades, temperature variations, timed writing results, counting calories, budget, sales, expenses, inventory, etc.). CLS4, CLS5, T3

Suggested Assessment Strategies:

- Performance assessment.
- Grade printout of formula view.

Competency 3: Create and graph spreadsheet data. CP1, CP2, CP3, CP4, CP5, CF2, KA1, KA2, KA3, LO2

Suggested Objectives:

a. Apply spreadsheet applications to integrated academic activities.
b. Apply the uses of spreadsheet applications in the Financial, Economic, and Business Literacy career pathway.
c. Create a budget narrative that integrates spreadsheet and word processing applications.
d. Send a spreadsheet and graph as an electronic mail attachment.

Suggested Teaching Strategies:

- Give each student an imaginary budget of $1500.00 per month. Have students research local newspapers to find a place to live. Have students interview parents and other adults in the community and use the Internet to determine monthly living expenses such as electric bills, water bills, garbage pickup, etc. CLS3, CLS4, CLS5, T3, T5
- Using their research and their imaginary budget, have students create a monthly budget using a spreadsheet.
- Once students have their monthly budgets, give them different scenarios such as unexpected injuries and illnesses, unexpected expenses such as a car breaking down, etc. CLS2, CLS3, CLS4, CLS5, T3, T5
- Have students adjust their budget accordingly and write a budget narrative explaining how they adjusted their original budget. Also, have students include a graph in their budget narrative. L1, L2, L3, L4, CLS2, CLS3, CLS4, CLS5, T3
- Have students turn in their final budgets and budget narratives via the Blackboard® web site or electronic mail. M1, M2, M3, M4, M5, T4
- As an alternate activity, group students as though they were officers of a club/team and have them perform a fundraiser. Have them choose an item to sell, decide how many items each member sold and work in groups to find formulas and functions for all totals, profit, etc.
- As an enrichment activity, have students input and graph their keyboarding NWAM data from the previous units. T3

Suggested Assessment Strategies:

- Grade the budgets and budget narratives using a teacher-prepared rubric according to specific project/assignment (scoring based on the number of skills being evaluated).
- Have students print spreadsheet and formulas sheet to check for accuracy of

formulas/functions.

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC^3 2005 Standards

CF2 Computer Software
KA1 Common Program Functions
KA2 Word Processing Functions
KA3 Spreadsheet Functions
LO2 Electronic Mail

Academic Standards

M1 Patterns and Algebraic Thinking
M2 Data Analysis and Prediction
M3 Measurement
M4 Geometric Concepts
M5 Number Sense
R1 Context Clues (Semantic)
R4 Vocabulary
L1 Editing: Capitalization and Punctuation
L2 Spelling
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Competency 1: Explain basic database applications. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, KA2, LO1, LO2, LO3

Suggested Objectives:

a. Research, key, and illustrate terminology used with database applications.
b. Identify fundamental concepts relating to database applications.
c. Identify the basic components of a database application screen.

Suggested Teaching Strategies:

- Discuss the role that database applications hold in the state, national, and global workforce. CLS1, CLS2, CLS3, CLS5
- Use presentation equipment to introduce terminology such as task pane, field name, field, field type, text fields, number fields, date/time fields, currency fields, memo field, yes/no field, hyperlink fields, AutoNumber fields, lookup field, field size, field format (general number, fixed, percent, standard, long, medium, short), primary key, wizards, form, record, sort ascending, sort descending, table, entry, relational database, query, complex query, parameter query, range query, select query, update query, design grid, form letter, mail merge, merge fields, report, report summary, etc. R1, R4, M5
- Explain basic components of a relational database and its structure, identify the different parts of the database window, and show examples of how to define fields and records while the students take notes.
- Have students key their notes from the teacher's presentation and use the Internet to find, copy/paste, and print the definitions. Have students e-mail or use the Blackboard® digital drop box to submit the completed notes. R7, CLS5, T1, T3, T4, T5
- Have students prepare for vocabulary test using written activity or game.

Suggested Assessment Strategies:

- Completed term illustration and definition activity.
- Written test.

Competency 2: Perform basic database applications. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, LO1, LO2, LO3

Suggested Objectives:

a. Demonstrate the use of a basic relational database.
b. Create and modify tables and forms using a relational database.
c. Enter and update records in a relational database.
d. Sort, update, and delete records in a relational database.

Suggested Teaching Strategies:

- Using classroom presentation equipment, the teacher will guide students through performance

exercises to create a relational database. In the exercises, the students should complete the following: M5, CLS5, T1, T3

  - Create and save a new database.
  - Create and save multiple tables.
  - Create different types of fields for the table (text, memo, number, date/time, currency, AutoNumber, yes/no, hyperlink, lookup).
  - Select the primary key for the tables.
  - Create, format, edit, and save a form in design view.
  - Practice working with forms in design view and form view.
  - Add multiple records to the form.
- Have students complete performance exercises on their own to practice the techniques listed above. Have students e-mail or use the Blackboard® digital drop box to submit their assignments. T1, T3, T4
- Have students peer review and peer teach techniques listed above as reinforcement. If needed, have them search the Internet to find database tutorials to enhance their understanding of database applications. Once students are comfortable with the techniques listed above, have them write a "tips sheet" with detailed steps of how to complete the techniques listed above. If time permits, allow students to insert screen shots into their "tips sheet." Have students e-mail or use the Blackboard® digital drop box to submit their assignments. L4, CLS4, CLS5, T1, T3, T4, T5, T6

Suggested Assessment Strategies:

- Evaluate performance assessment of individual exercises.
- Use the writing rubric from ICT I, Unit I to evaluate the "tips sheet" for ideas, organization, and voice.

Competency 3: Perform advanced database applications. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, KA2, LO1, LO2, LO3, LO4

Suggested Objectives:

a. Demonstrate the understanding of database relationships.
b. Demonstrate a mastery understanding of queries.
c. Develop form letters and mailing labels using a database program and a word processing program.

Suggested Teaching Strategies:

- Using classroom presentation equipment, the teacher will guide students through advanced database performance exercises. In the exercises, the students should complete the following: CLS5, T1, T3
  - Define relationships in a relational database.
  - Create and use queries.
  - Create range queries.
  - Create and use complex queries.
  - Create form letters and mailing labels from a database.
  - Create parameter and update queries.
- Have students complete performance exercises on their own to practice the techniques listed above. CLS5, T1, T3
- Have students peer review and peer teach techniques listed above as reinforcement. Have

students search the Internet to find tutorials for the techniques listed above. Once students are comfortable with the techniques listed above, have them make additions to their "tips sheet" with detailed steps of how to complete the techniques listed above. If time permits, allow students to insert screen shots into their "tips sheet." L4, CLS4, CLS5, T1, T3, T4, T5, T6

- Have students compile their "tips sheets" into a database resource guide. Have students plan and conduct workshops or seminars about relational database techniques for faculty and staff of the school, parents, and community members. L4, CLS3, CLS4, CLS5, T1, T3, T4, T5, T6

Suggested Assessment Strategies:

- Evaluate performance assessment of individual exercises.

Competency 4: Design and create a database. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, KA2, KA3, DA4, LO2, L03, LO4

Suggested Objectives:

a. Research, access, process, and manage data.
b. Present data in a user friendly format.

Suggested Teaching Strategies:

- Collaborate with an academic teacher to determine a topic of study and content area questions. Samples of questions are listed below:
  - How does the range of sounds that humans can hear compare with the range of sounds that other animals can hear?
  - What effects does water pollution have on developing organisms?
  - What are issues concerning the impact of developments in space research and technology in agriculture, navigation, and telecommunications?
  - What are possible sources of error when predicting weather?
- Have students use the Internet, print resources (newspapers, books, magazines), PDAs, web databases, observational and measurement tools (microscopes, telescopes, probes), and other resources to collect real time observations, data, and information on their chosen topic. R6, R7, M2, CLS1, CLS3, CLS4, CLS5, T1, T2, T3, T4, T5, T6
- Have students organize the data into a relational database and use a database report to analyze and synthesize information. L1, L2, L3, L4, M2, CLS1, CLS3, CLS4, CLS5, T1, T2, T3, T4, T5, T6
- Using a word processing program, students will combine their database report with diagrams, flow charts, frequency tables, bar graphs, line graphs, and other types of graphic displays to draw conclusions and implications based on investigations of the question. L1, L2, L3, L4, M2, CLS4, CLS5, T1, T3, T4, T6
- Students will create a final report that incorporates qualitative and quantitative data gathered through the investigation. Have students create a multimedia presentation and share their report with the class. L1, L2, L3, L4, CLS1, CLS3, CLS4, CLS5, T1, T2, T3, T4, T5, T6

Suggested Assessment Strategies:

- The academic and ICT teachers will collaborate to develop a rubric that will be used to evaluate the final report.

Competency 5: Integrate database application software with multiple technology productivity tools. CF1,

CF2, CF3, KA1, KA2, KA3, LO1, LO3, LO4

Suggested Objectives:

a. Integrate spreadsheets with data collection instruments to compare and contrast environmental and agricultural industries, conservation efforts, weather, and water quality in other countries.

Suggested Teaching Strategies:

- Have students use data collection instruments such as probes to collect environmental data. If applicable, students can complete the Environmental Module from the TRAC program to accomplish this task. CLS4, CLS5, T1, T3, T6
- Have students import that data into a spreadsheet application software program. M1, M2, M3, M5, CLS4, CLS5, T1, T3, T6
- Have students format the data. CLS5, T1, T3, T6
- Have students use the Internet to research environmental and agricultural industries, conservation efforts, weather, and water quality in other states and other countries. CLS1, CLS3, CLS4, CLS5, T1, T2, T3, T5, T6
- Have students input the data from their research into the spreadsheet application file. CLS5, T1, T3, T6
- Have students generate different graphs and statistics to compare and contrast the environmental and agricultural industries, conservation efforts, weather, and water quality in their community, other states, and other countries. M2, R6, CLS1, CLS3, CLS4, CLS5, T1, T2, T3, T5, T6
- Using a word processing program, have students use the writing process to compose and key a summary report. Students should integrate charts and graphs from the spreadsheet application program into their summary report. L1, L2, L3, L4, CLS1, CLS3, CLS4, CLS5, T1, T2, T3, T5, T6

Suggested Assessment Strategies:

- Collaborate with the science teacher to evaluate the summary report using a teacher-prepared rubric according to specific project/assignment (scoring based on the number of skills being evaluated).

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC^3 2005 Standards

CF1 Computer Hardware
CF2 Computer Software
CF3 Using an Operating System
KA1 Common Program Functions
KA2 Word Processing Functions
KA3 Spreadsheet Functions
DA4 Presentation Software
LO1 Networks and the Internet
LO2 Electronic Mail
LO3 Using the Internet
LO4 The Impact of Computing and the Internet on Society

Academic Standards

M1 Patterns and Algebraic Thinking
M2 Data Analysis and Prediction
M3 Measurement
M4 Geometric Concepts
M5 Number Sense
R1 Context Clues (Semantic)
R4 Vocabulary
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L1 Editing: Capitalization and Punctuation
L2 Spelling
L3 Sentence Structure (Syntactic)
L4 Meaning (Semantic)

21st Century Literacy skills

CLS1 Global Awareness

CLS2 Financial, Economic, and Business Literacy
CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T1 Basic operations and concepts
T1 Creativity and Innovation
T2 Communication and Collaboration
T3 Research and Information Fluency
T4 Critical Thinking, Problem Solving, and Decision Making
T5 Digital Citizenship
T6 Technology Operations and Concepts

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Competency 1: Explain basic network components. CP1, CP2, CP3, CP4, CP5, LO1, LO2, LO3, LO4

Suggested Objectives:

a. Discuss the terminology and components of a successful network.
b. List advantages of using a network.
c. Differentiate among different types of networks.
d. Describe the various network communication standards.
e. Discuss different ways to set up a home network.

Suggested Teaching Strategies:

- Give students a pretest to determine their prior knowledge of the Internet, e-mail, and other network components.
- Have students research the Internet to see different samples of web quests. Next, have students use a word processing program to create a web quest to define, type, and illustrate basic network terminology. Terminology should include but is not limited to; communications channel, the Internet, web, e-mail, FTP, instant messaging, chat rooms, web folders, videoconferencing, fax, wireless messaging services, text messaging, public Internet access points, global positioning system (GPS), networks, local area network (LAN), wireless local area network (WLAN), metropolitan area network (MAN), wide area network (WAN), client/server network, peer-to-peer network, Intranets, Ethernet, Bluetooth, dial-up lines, DSL, communication device, modems, wireless adapter, network cards, wireless access point, routers, switches, hubs, firewall, home networks, bandwidth, network specialist, network engineer, etc. R1, R4, CLS4, CLS5, T1, T2, T3, T5, T6
- Have students complete a web scavenger hunt to find the answers to the following questions. R5, R6, CLS4, CLS5, T1, T3, T5, T6
  - What operating system has TCP/IP built into it?
  - What is the most common bridge used to connect two dissimilar networks?
  - What company developed the token ring protocol?
  - What is the purpose of the Bluetooth special interest group? Where are the headquarters of this organization?
  - How many cybercafés are located in Paris, France?
  - How many different types of networks are there? What makes them different?
  - What are communication standards and why should you know about them?
- Have students use a word processing and spreadsheet application program to write a grant to set up a network for the local boys and girls club. Students should include an introduction, problem statement or needs assessment, objectives, methods, timeline, evaluation, budget, and budget narrative. L1, L2, L3, L4, M2, M3, M5, CLS2, CLS3, CLS4, CLS5, T1, T2, T3, T5, T6
- Have students respond to their learning by writing at least one page about their reactions, evaluations, and reflections on computer communications and networks. Students should post their writings on the Blackboard® discussion board. L1, L2, L3, L4, M2, M3, M5, CLS4, CLS5, T1, T3, T4

Suggested Assessment Strategies:

- Completed definitions.
- Completed web scavenger hunt.
- Completed grant application.

Competency 2: Practice setting up a network. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, LO1, LO2, LO3, LO4

Suggested Objectives:

a. Discuss different ways to set up a network.
b. Practice setting up a network.
c. Show a strong understanding of how a network should be set up.

Suggested Teaching Strategies:

- Have a local merchant bring networking devices such as game consoles to the class and demonstrate how to link devices.
- Ask the local school district or a local industry network administrator or engineer to visit the class and demonstrate how they set up their network.
- Have students practice connecting graphing calculators and Personal Digital Assistants (PDA) and creating usernames, passwords, and assigning rights where appropriate. CLS4, CLS5, T1, T2, T4, T6
- Have students use the writing process to compose a technical report on how to set up a network in a school or professional environment. Have students submit their report using e-mail or the Blackboard® digital drop box. M3, M4, L1, L2, L3, L4, CLS4, CLS5, T1, T2, T4, T6

Suggested Assessment Strategies:

- Teacher observations.
- Use the writing rubric from ICT I, Unit I to evaluate the technical report for ideas, organization, and voice.

Competency 3: Demonstrate a strong understanding of network management. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, KA2, KA3, DA4, LO1, LO2, LO3, LO4

Suggested Objectives:

a. Research and identify accessibility issues related to network management and information technology.
b. Design a computer lab.

Suggested Teaching Strategies:

- Students will research accessibility issues related to network management. Using their research, students will work as a class to develop a school standard for network management. R5, R6, R7, CLS3, CLS4, CLS5, T1, T2, T3, T4, T5, T6
- Divide students into groups and give each group an imaginary budget. Students will use the budget to redesign and update their computer lab in order to make it accessible for students/people with

disabilities. M2, M5, CLS2, CLS3, CLS4, CLS5, T1, T2, T3, T4, T5, T6

- Have students work in groups to solve the following case study:
    - You are interested in setting up a network at your home. Currently, there are two computers in different locations in your home and you want to look at the most efficient way to network these computers together. Use resources available to create a report that shows the cost of purchasing items for a wireless network versus a peer-to-peer network. Also, include information on the benefits of setting up a home network.
    - Have groups present their report.

Suggested Assessment Strategies:

- Develop a rubric based on the standards students develop.
- Writing rubric from ICT I, Unit 1.

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC3 2005 Standards

CF1 Computer Hardware
CF2 Computer Software
CF3 Using an Operating System
KA1 Common Program Functions
KA2 Word Processing Functions
KA3 Spreadsheet Functions
DA4 Presentation Software
LO1 Networks and the Internet
LO2 Electronic Mail
LO3 Using the Internet
LO4 The Impact of Computing and the Internet on Society

Academic Standards

M2 Data Analysis and Prediction
M3 Measurement
M4 Geometric Concepts
M5 Number Sense
R1 Context Clues (Semantic)
R4 Vocabulary
R5 Main Idea and Details (Textual)
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L1 Editing: Capitalization and Punctuation
L2 Spelling
L3 Sentence Structure (Syntactic)
L4 Meaning (Semantic)

21st Century Literacy skills

CLS2 Financial, Economic, and Business Literacy

CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T1 Creativity and Innovation
T2 Communication and Collaboration
T3 Research and Information Fluency
T4 Critical Thinking, Problem Solving, and Decision Making
T5 Digital Citizenship
T6 Technology Operations and Concepts

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Competency 1: Perform design applications. CP4, CF2, CF3, KA1, LO3

Suggested Objectives:

a. Identify terminology used with advanced design applications.
b. Identify the basic components of an advanced design application screen.

Suggested Teaching Strategies:

- Have students use the Internet to research bridge design. T5
- Explain the concepts of Computer Aided Drafting (CAD).
- Using a multimedia presentation, show students the basic components of a design application screen. Students will identify the different parts of the screen in their notes.
- Have students research, key, and illustrate terminology related to advanced design applications (i.e., structure weight, breaking loads, measurements, geometric concepts, geometric angles, etc). R1, R4, M1, M2, M3, M4, M5, T3, T5
- Have students complete the TRAC – MAGLEV Module. M2, M5, R6, R7, T3
- Have students use the writing process to research, design, and create a brochure that summarizes their knowledge of the MAGLEV Module. L1, L2, L3, L4, R1, R4, T3, T5
- Have students complete the TRAC Bridge Builder Module to address comprehensive aspects of the design and building of bridge structures. In this module, numerous concepts are introduced independently and then are synthesized through a series of experimental demonstrations, hands-on projects, and computer-based simulations. R1, R4, R5, R6, R7, M1, M2, M3, M4, M5, CLS3

Suggested Assessment Strategies:

- Written test.
- Completed terminology activity.
- Completed MAGLEV Module.

Competency 2: Create advanced design applications. CP4, CF2, CF3, KA1, KA2

Suggested Objectives:

a. Exercise sound reasoning in the development of a design application.
b. Make complex choices when using a design application.
c. Understand interconnections between different software applications.

Suggested Teaching Strategies:

- Have students complete the TRAC Design and Construction Module. This module covers the educational topics of data visualization and management of technology to benefit society, taught in social studies courses, and the positive and negative impacts of transportation systems. Transportation topics include horizontal curvature, traffic flow, and capacity

relationships used with traffic engineering, determining the "best" road location to acquire right of way, and traffic management systems. In this module, have students complete Activity One and Activity Two. R1, R4, R5, R6 R7, M1, M2, M3, M4, M5, CLS3

- Show students how to effectively use a geographic information system (GIS).
- Have someone from the local parks and recreation department come and speak to the class about the development and continued operation of the local city parks. Request that the guest speaker address budget concerns, park layout, safety concerns, etc.
- Using a GIS, have students work in teams to compare alternative sites and the best location for a new park according to information they learned from the guest speaker.
- Develop innovative plans, including specific recommendations illustrated by maps, for the new and improved park. Students can use design software, publishing software, or word processing software to accomplish this task (e.g., SIMCITY TRAC Module). Also, have groups work with a spreadsheet program to develop a budget for the building and operation of the new park. L4, R1, R4, R5, R6, R7, M1, M2, M3, M4, M5, L3

Suggested Assessment Strategies:

- Develop a rubric or a checklist to evaluate the student group projects. If possible, invite the guest speaker to come back and evaluate each group project. Award a certificate to the winning group.

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC³ 2005 Standards

CF2 Computer Software
CF3 Using an Operating System
KA1 Common Program Functions
KA2 Word Processing Functions
LO3 Using the Internet

Academic Standards

M1 Patterns and Algebraic Thinking
M2 Data Analysis and Prediction
M3 Measurement
M4 Geometric Concepts
M5 Number Sense
R1 Context Clues (Semantic)
R4 Vocabulary
R5 Main Idea and Details (Textual)
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L1 Editing: Capitalization and Punctuation
L2 Spelling
L3 Sentence Structure (Syntactic)
L4 Meaning (Semantic)

21st Century Literacy Skills

CLS1 Global Awareness
CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T3 Research and Information Fluency

T5 Digital Citizenship

Suggested References

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Competency 1: Explain basic graphic design elements. CP1, CP4, CP5, CF1, CF2, CF3, KA1, KA2, DA4, LO1, LO3, LO4

Suggested Objectives:

a. Identify terminology and techniques associated with graphic design.
b. Understand the basic components of graphic design software applications.

Suggested Teaching Strategies:

- Using a multimedia presentation, explain the design process to students.
- According to learning style or personality assessments, divide the class into five groups. Assign each group one of the following topics: R4, R5, R6, CLS4, CLS5, T1, T3, T4, T5, T6
  - Introduction to Design
  - Color Theory
  - Composition and Layout
  - Perspective
  - Typography
- Students will use web sites such as http://www.mundidesign.com to research their chosen topic. CLS4, CLS5, T1, T3, T5
- Students will develop a presentation on their topic and teach their topic to the class. CLS4, CLS5, T1, T3, T5
- Using a LCD projector and a screen, the teacher will introduce graphic design software, such as Adobe Photoshop®, to students.
- Have students use handwriting recognition software or word processing applications to take notes from the lecture. T3
- Periodically throughout the note taking, request students to perform simple tasks. Students will be required to reinforce these skills by reviewing the techniques with other students by peer teaching. CLS4, CLS5, T3, T6

Suggested Assessment Strategies:

- Allow students to evaluate presentations of their peers using the peer evaluation rubric from ICT I, Unit 9. Administer a written test on the topics that were presented in class.

Competency 2: Use basic graphic design elements. CP3, CF1, CF2, CF3, KA1, KA2, KA3, DA4, LO1, LO3, LO4

Suggested Teaching Strategies:

- Have students gather high quality examples of display ads and flyers, logos, newsletters, brochures of all kinds, business cards, letterheads, magazines, newspapers, labels, books, book jackets, etc.
- Discuss characteristics of high quality work. Have the class develop a rubric to evaluate high quality design. CLS4
- Using personality and learning style inventories, divide students into groups of three to five.

- Have students research the Internet to research automobile designs. R5, R6, R7, CLS1, CLS3, CLS4, CLS5, T5
- If applicable, have students use the design process and a writing tablet to sketch an electronic blueprint for an original automobile per team. Consider aerodynamics, fuel cost, materials cost, materials durability, etc. Invite an industry expert from the automotive industry to serve as a resource to students while they are completing this project. L4, M3, M4, M5, CLS1, CLS3, CLS4, CLS5, T1, T2, T3, T5, T6
- Have students pitch their design to the class.
- Regroup students and assign roles in a simulated ad agency. Randomly assign one of the automobile sketches.
- Have students collaborate to develop an advertising campaign to promote their assigned automobile. Invite an industry expert from the design industry or from a public relations firm to serve as a resource to students while they are completing this project. The advertisement campaign should include a variety of media formats such as desktop publishing and multimedia. L1, L2, L3, L4, CLS1, CLS3, CLS4, CLS5, T1, T2, T3, T5, T6
- Have students publish and present their final advertisement campaign to a panel of focus group of community members and parents. CLS1, CLS3, CLS4, CLS5, T3, T5, T6
- As an enrichment activity, have students choose a variety of advertisements of products that are personally appealing to them. Have students analyze the techniques used by each advertisement to attract teen buyers. Have students present this information in the most appropriate format. CLS1, CLS3, CLS4, CLS5, T3, T4, T5, T6

Suggested Assessment Strategies:

- Use the graphic design checklist to evaluate the project.

Competency 3: Create basic graphic design elements. CP1, CP2, CP3, CP4

Suggested Objectives:

a. Research Mississippi industries.
b. Create a logo and slogan to represent Mississippi industries.

Suggested Teaching Strategies:

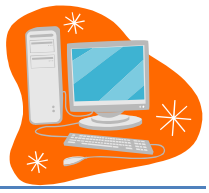
- Have students individually research Mississippi industries and choose one that interests them. CLS3, CLS4, CLS5, T1, T5
- Have students individually generate a logo and slogan representing their chosen industry. T1, T2, T3, T4, T5, T6

Suggested Assessment Strategies:

- Use the student-generated rubric to evaluate the logo and slogan.

Suggested Rubrics and Checklists

Graphic Design Checklist



NAME: _____ **DATE:** _____ **PERIOD:** _____

The designer met the assigned deadline.	20	
The designer incorporated all given specifications.	20	
The design contained all necessary information.	15	
The design did not violate copyright regulations.	15	
The design was an original piece of art.	15	
The design reached a high standard of visual accomplishment (well crafted, communicated, and interesting).	15	
Total	100	

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC3 2005 Standards

CF1 Computer Hardware
CF2 Computer Software
CF3 Using an Operating System
KA1 Common Program Functions
KA2 Word Processing Functions
KA3 Spreadsheet Functions
DA4 Presentation Software
LO1 Networks and the Internet
LO2 Electronic Mail
LO3 Using the Internet
LO4 The Impact of Computing and the Internet on Society

Academic Standards

M3 Measurement
M4 Geometric Concepts
M5 Number Sense
R4 Vocabulary
R5 Main Idea and Details (Textual)
R6 Expanded Comprehension (Metacognitive)
R7 Workplace Data (Evaluative)
L1 Editing: Capitalization and Punctuation
L2 Spelling
L3 Sentence Structure (Syntactic)
L4 Meaning (Semantic)

21st Century Literacy Skills

CLS1 Global Awareness
CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills

CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T1 Creativity and Innovation
T2 Communication and Collaboration
T3 Research and Information Fluency
T4 Critical Thinking, Problem Solving, and Decision Making
T5 Digital Citizenship
T6 Technology Operations and Concepts
CP5 Environmental, Agriculture, and Natural Resources

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Competency 1: Explain web design applications. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, KA2, LO1, LO3, LO4

Suggested Objectives:

a. Research, key, and illustrate terminology used with web design applications.
b. Identify the basic components of a web design application screen.

Suggested Teaching Strategies:

- Use presentation equipment to introduce terminology such as alignment, animated GIF, animation, active server page (ASP), banner, bitmap image (bmp), check box, cascading style sheet (CSS), dynamic hypertext mark-up language (DHTML), drop down menu, Error 404, flash, web forms, frame, file transfer protocol (FTP), GIF, graphic backgrounds, hypertext markup language (HTML), hyperlink, hypertext, image map, information page, java, JavaScript, JPEG, mouse over, portable document format (PDF), radio button, WYSIWYG (What You See Is What You Get), etc. R1, R4
- Explain basic components of a web application program, identify the different parts of the screen, and show examples of high and low quality web pages.
- Discuss characteristics of high quality web pages. Have the class develop a rubric to evaluate web pages.
- Use presentation equipment to demonstrate the basic components of web design applications. Have students take notes from the presentation.
- Have students use the Internet and a word processing application to find, key, illustrate, and print definitions. Students will also key their notes from the teacher's presentation. T1, T3, T5
- Have students prepare for vocabulary test using written activity or game.

Suggested Assessment Strategies:

- Completed term illustration and definition activity.
- Written test.

Competency 2: Perform basic web design applications. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, KA2, LO1, LO2, LO3, LO4

Suggested Objectives:

a. Demonstrate the understanding of the HTML programming language.
b. Publish a web page.

Suggested Teaching Strategies:

- Using classroom presentation equipment, introduce students to the HTML programming language.
- Have students complete performance exercises on their own to practice using the programming language. CLS4, CLS5, T1, T3, T4, T5, T6
- Have students peer review and peer teach the use of HTML as reinforcement. Once students are

comfortable with the use of HTML, have them make create an HTML web resource guide with detailed steps of how to complete the different techniques. If time permits, allow students to insert screen captures into their guide. L4, CLS4, CLS5, T1, T3, T4, T5, T6

Suggested Assessment Strategies:

- Evaluate performance assessment of individual exercises.

Competency 3: Perform advanced web design applications. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, KA2, LO1, LO2, LO3, LO4

Suggested Objectives:

a. Demonstrate the use of a web design program.
b. Create and modify a webpage.

Suggested Teaching Strategies:

- Contact the Mississippi Attorney General's Office, textbook publishers, or multimedia specialists to visit the classroom and discuss Internet safety focusing on copyright, fair use, and accessibility issues related to web design. CLS3, CLS4, CLS5, T1, T2
- Using classroom presentation equipment, the teacher will guide students through performance exercises to create a web page. In the exercises, the students should complete the following: CLS3, CLS4, CLS5, T1, T2, T3
    - Give the web page a title.
    - Insert, format, and edit text.
    - Insert graphics.
    - Insert hyper text links.
    - Insert mail to links.
    - Use image rollovers.
    - Insert graphics with links.
    - Use graphics effectively (e.g., .jpg vs. .gif, resizing in the web page editor, creating thumbnails, etc.).
    - Create and modify tables.
    - Create and modify lists.
    - Create and modify horizontal rules.
    - Indent text.
    - Use text alignment.
    - Add links (absolute vs. relative).
    - Add paragraph and line breaks.
    - Modify fonts and colors.
- Have students complete performance exercises on their own to practice the techniques listed above. CLS3, CLS4, CLS5, T1, T2, T3, T4, T5, T6
- Have students use the web page design rubric to peer review and peer teach techniques listed above as reinforcement.

Suggested Assessment Strategies:

- Evaluate performance assessment of individual exercises.

Competency 4: Design and create a web page. CP1, CP2, CP3, CP4, CP5, CF1, CF2, CF3, KA1, LO1, LO2, LO3, LO4

Suggested Objectives:

a. Research a topic.
b. Present data in an easy to understand web page.

Suggested Teaching Strategies:

- Have students develop a web site for the Mississippi industry that was selected in the previous unit. The web site should include the logo, slogan, information about the industry, local area information, and contact information. CLS2, CLS3, CLS4, CLS5, T1, T2, T3, T4, T5, T6

Suggested Assessment Strategies:

- Use a classroom web page evaluation instrument to evaluate student web pages.

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC3 2005 Standards

CF1 Computer Hardware
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KA2 Word Processing Functions
KA3 Spreadsheet Functions
DA4 Presentation Software
LO1 Networks and the Internet
LO2 Electronic Mail
LO3 Using the Internet
LO4 The Impact of Computing and the Internet on Society

Academic Standards

R1 Context Clues (Semantic)
R4 Vocabulary

21st Century Literacy Skills

CLS2 Social, ethical, and human issues
CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

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Unit 9: Technology Problem-solving and Decision Making Tools (35 hours)

Note: This unit should be instructed in an online learning environment.

Competency 1: Create well-formulated long-term, intermediate, and short-term goals.

Suggested Objectives:

a. Understand the purpose and process of setting long-term, intermediate, and short-term goals.
b. Understand the mechanics of writing, including capitalization, punctuation, and usage.
c. Apply standard capitalization, punctuation, and usage rules when proofreading written assignments.

Suggested Teaching Strategies:

- Have students watch *10 Things Every Student Needs to Know to Study* video to introduce the remaining competencies for this unit and complete a teacher-made video guide individually. Have students then divide into five groups and assign two of the topics from each video to illustrate on chart paper and "teach" the rest of the class.
- Use the SMART Goals model to demonstrate the development of quality goal statements using strong *I*-statements and proper grammar. Have students rewrite goal statements using the SMART Goals model.
- In cooperative groups/pairs, have students differentiate among short-term, intermediate, and long-term goals using a graphic organizer and original goal statements (personal, academic, and career).
- Demonstrate the use of the *Weekly Reflection* to set academic goals.

Suggested Assessment Strategies:

- Use a video guide and/or group presentation (observation) checklist.
- Evaluate the SMART Goals statement writing activity.
- Have students write weekly reflections (ongoing).

Competency 2: Develop effective time management skills.

Suggested Objectives:

a. Understand the purpose and process of developing a semester, weekly, and daily calendar.
b. Set semester, weekly, and daily priorities.
c. Create semester, weekly, and daily calendars.

Suggested Teaching Strategies:

- Display and demonstrate the use of a variety of print and/or electronic calendars/planners, including PDAs, cell phones, etc. Have students identify the calendar of their choice to use for the remaining school year as a time management tool. Have the students record:

- Weekly lesson plans on board/e-mail for students to document in the planner.
- Projects, homework, tests, and other dates (for all classes) in calendar/planner with a self-developed color coding/organization system.
- All other events (academic, extracurricular, personal, social) should be recorded for time management.
- Discuss the importance of the daily To-Do List that should be completed at the end of day for the next day's activities and the concept of procrastination. Have students share their own battles about procrastination and their impact.
- Display the type of notebook and organization of the notebook required for the course. Provide a teacher-made checklist of all the necessary notebook elements.
- Have students calculate time available to study and study time required for each course by using the Time Management Formula and the Study Hour Formula activities. Have students convert their findings into percentages and insert values into a pie chart using the tools in technology productivity tools. Have students measure the angles of the pie chart using a protractor. Have students Think-Pair-Share to compare and contrast their findings.

Suggested Assessment Strategies:

- Use a Calendar/Planner and Notebook Checklist.
- Evaluate the time management calculation activity.

Competency 3: Apply appropriate skills and techniques for improving concentration and memory.

Suggested Objectives:

a. Identify strategies for improving concentration.
b. Differentiate between short- and long-term memory.
c. Use organizational strategies and sensory connections to improve memory.
d. Implement strategies to improve memory.
e. Incorporate graphical representations when reading assignments.

Suggested Teaching Strategies:

- Using a Venn Diagram, have students differentiate among internal and external distractions and discuss strategies for combating these issues for success.
- Have students differentiate among selective attention, pseudo forgetting, decay theory, and interference as related to memory skills using a graphic organizer of choice on chart paper.
- Have students use the Internet to research the difference between long- and short-term memory. Have students research/identify memory building strategies. Assign pairs the following memory building strategies to present to the class visually or in a role play using actual content they are currently learning in another class: tools for recitation, distributed practice, clustering/chunking, mental visualization, LINK system for lists, acronyms, and acrostics.

Suggested Assessment Strategies:

- Evaluate students' Venn Diagrams.
- Observe the students' use of the Internet and their searching techniques.
- Have students demonstrate memory strategies (ongoing).

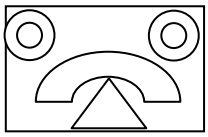
Competency 4: Develop effective written, oral, and nonverbal communication skills.

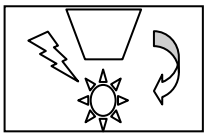
Suggested Objectives:

a. Identify the impact of effective and non-effective communication.
b. Identify characteristics of effective written, oral, and nonverbal communication.
c. Identify personal strengths and weaknesses in communication.
d. Develop a communication improvement plan.
e. Demonstrate empathic and active listening skills.
f. Determine how to apply communication skills to specific situations.

Suggested Teaching Strategies:

- Pass out cards with different shapes (see below for samples).





- Divide students into groups of four or five. Have one student (the describer) in the group describe the drawing on the card to other students using verbal instruction only (no hands). Without seeing the picture on the card, other students will listen to the descriptions and draw their interpretation of the picture. The describer cannot observe other students while they are drawing. Students will have five minutes to complete their drawings.
- Allow a second student to describe a different card to the group. The describer can look at the students' interpretations and correct them verbally. Group members have five minutes to complete their interpretation of the picture.
- Allow a third student to use only nonverbal communication when describing a different card to the group. Give group members five minutes to complete their interpretation of the drawing.
- Allow a fourth student to use nonverbal and verbal communication when describing a different card to the group. Give group members five minutes to complete their interpretation of the drawing.
- Have students compare drawings to determine whose drawing is closest to the original drawing and discuss the difficulty of communicating with barriers.
- Divide students into four groups. Assign each group an article related to effective communication skills (nonverbal, verbal, written, body language, etc.). Give each group a set of markers and chart/bulletin board paper. Have each group read their article and present the information to the class using markers and chart/bulletin board paper. Ask students not to use words, but to use pictures on their chart/bulletin board paper. Then have students work as a whole group to create a single list combining elements from all of the articles.
- Based on the information from the articles, have students use the writing process and a word processing program to create a survey that evaluates their communication skills. Ask students to use the survey to evaluate their personal communication skills. Ask students to give the survey to peers, family members, and teachers. Have students input data into a spreadsheet application program. Have students compare and contrast their personal evaluation to the evaluation of peers, family members, and teachers.
- Have students develop a plan to improve written, oral, and nonverbal communication skills.

Suggested Assessment Strategies:

- Evaluate students using a classroom participation checklist.
- Evaluate students' communication improvement plans using a writing rubric.

Competency 5: Implement effective note-taking and text-reading strategies and techniques.

Suggested Objectives:

a. Understand the forms and formats that can be used to take effective textbook notes.
b. Develop skills necessary to take effective notes before, during, and after lectures.
c. Use technology to prepare, organize, and master essential note-taking skills.
d. Recognize patterns of organization in textbooks.
e. Identify definition, sequence, list, compare-contrast, and cause-and-effect patterns of organization from readings and lectures.
f. Summarize lecture notes, paragraphs, and essays using patterns of organization.

Suggested Teaching Strategies:

- To introduce the concept of note taking, have students watch a 6-8 minute informational video clip of the teacher's choice with no preparation or introduction. Tell them to watch it to gain information on the topic and not take notes. Afterwards, have students answer several questions based on the clip. Show the clip again with students taking notes this time. Afterwards, have students answer a different set of questions (same clip). Discuss the difference in the results and correlate this activity to the importance of taking good notes during class.
- Using multimedia presentation equipment, demonstrate general note-taking tips and the Cornell Note Taking System® as an effective way to take notes during class or when reading text. Before beginning, have students predict what each step of the system means: record, reduce, recite, reflect, and review. Have students differentiate between reviewing and reflecting. Simulate a mini-lesson where students use the note-taking column to record notes. In class, they convert their notes to the cue column and summary section, using color coding, special bulleting, etc. if they so choose. Have students practice using the system all the way through recitation practice. Have students actually apply this technique in one of their other classes.
- Have students identify all the different parts of a textbook and determine the purpose of each part.
- Introduce the SQ4R system (survey, question, read, record, recite, reflect) for reading textbooks or content materials. Have students predict what actions they think are taken in each step of the process. As a whole class, demonstrate the use of the SQ4R system with a chapter in a textbook. Have students use this strategy with a text reading required for another class.

Suggested Assessment Strategies:

- Observe video activity participation.
- Evaluate the Cornell Note Taking® in-class activity.
- Evaluate the Cornell Note Taking® other-class activity.
- Evaluate the completed SQ4R activity.

Competency 6: Develop effective test-taking skills and strategies.

Suggested Objectives:

a. Identify general test-taking strategies.
b. Apply general test-taking strategies.
c. Develop relaxation techniques and positive self-talk to aid in test anxiety.
d. Utilize technology resources to prepare for exams.
e. Develop study-review plans and exam-day strategies when taking exams.
f. Utilize strategies to effectively answer both objective and subjective exam questions.

Suggested Teaching Strategies:

- As a whole class, create a semantic web of students' responses to such questions as: How do you study for a test? Where do you study? Do you have any rituals? How do you feel on the day of the test? Do you set a grade goal for yourself? Do you like to study with a partner? What are your fears about test taking? Have the students watch the Test Taking Strategies video to introduce the concepts of the different types of tests and study strategies using a teacher-made video guide.
- Have each student collect test-taking data from 5-6 students including: test type most comfortable/easiest/preferred, test type least comfortable/hardest/least preferred, and any other appropriate categories they choose to survey. As a whole class, have students combine the data and create a bar graph to represent the information.
- Have students identify the different types of tests and strategies to use for each type by researching test-taking strategies on the Internet. Groups may be assigned each type of test and teach/demonstrate to the class each helpful strategy.

Suggested Assessment Strategies:

- Evaluate the data collection and reporting activity using a writing rubric.
- Use a rubric to evaluate group presentations.

Competency 7: Improve self-esteem.

Suggested Objectives:

a. Research issues related to self-esteem.
b. Identify the benefits of positive self-esteem.
c. Create a product that will help others improve their self-esteem.

Suggested Teaching Strategies:

- Have students work in groups to research issues related to self-esteem.
- Have each group create a children's book for elementary students related to improving self-esteem. Have students visit a local elementary school and teach younger students about the importance of self-esteem.

Suggested Assessment Strategies:

- Have a committee of parents, teachers, administrators, and business/industry members evaluate the books for content and creativity.

Standards

Career Pathways

CP1 Agriculture Sciences
CP2 Business
CP3 Construction and Manufacturing
CP4 Health Sciences
CP5 Human Sciences, Arts, and Humanities
CP6 Transportation
CP7 Science, Technology, Engineering, and Mathematics

IC3 2005 Standards

CF1 Computer Hardware
CF2 Computer Software
CF3 Using an Operating System
KA1 Common Program Functions
KA2 Word Processing Functions
KA3 Spreadsheet Functions
DA4 Presentation Software
LO1 Networks and the Internet
LO2 Electronic Mail
LO3 Using the Internet
LO4 The Impact of Computing and the Internet on Society

Academic Standards

M1 Patterns and Algebraic Thinking
M2 Data Analysis and Prediction
M3 Measurement
M4 Geometric Concepts
L1 Editing: Capitalization and Punctuation
L2 Spelling
L3 Sentence Structure (Syntactic)
L4 Meaning (Semantic)

21st Century Literacy Skills

CLS1 Global Awareness
CLS2 Social, ethical, and human issues
CLS3 Civic Literacy
CLS4 Thinking, Problem Solving, Interpersonal, and Self-directional Learning Skills
CLS5 Information and Communication Technology (ICT) Learning Skills

National Educational Technology Standards for Students

T1 Creativity and Innovation
T2 Communication and Collaboration
T3 Research and Information Fluency
T4 Critical Thinking, Problem Solving, and Decision Making
T5 Digital Citizenship
T6 Technology Operations and Concepts

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For additional references, activities, and web resources, please refer to: Information and Computer Technology B.R.I.D.G.E. Web site: http://www.rcu.blackboard.com (Available only to registered users).

Student Competency Profile for Information and Communication Technology I

Student:_____

This record is intended to serve as a method of noting student achievement of the competencies in each unit. It can be duplicated for each student and serve as a cumulative record of competencies achieved in the course.

In the blank before each competency, place the date on which the student mastered the competency.

Unit 1: Orientation and Ethics

_____1. Identify course expectations, school policies, program policies, and safety procedures related to Information and Communication Technology (ICT).
_____2. Explore personality development and the classroom environment in relation to interpersonal skills, others, and the world of work.
_____3. Develop leadership skills.
_____4. Compare and contrast career pathways at the state level, national level, and global level.
_____5. Exercise sound reasoning in understanding and making complex choices about working in teams.
_____6. Understand the ethical, cultural, and societal issues related to technology.
_____7. Practice the responsible use of technology systems, information, and software.
_____8. Research social, ethical, and human issues related to technology and careers.

Unit 2: Basic Operations and Technology Concepts

_____1. Demonstrate a sound understanding of the nature and operation of technology systems.
_____2. Demonstrate proficiency in the setup of a computer system.
_____3. Operate basic computer applications.
_____4. Exercise sound reasoning in understanding and making complex choices about working with information technology and people with disabilities.

Unit 3: Technology Communication and Research Tools

_____1. Explain telecommunication applications.
_____2. Utilize applications of telecommunications.
_____3. Publish and interact with peers, experts, and other audiences using telecommunications.
_____4. Understand technology used to locate, evaluate, and collect information from a variety of sources.
_____5. Utilize technology to locate, evaluate, and collect information from a variety of sources.

Unit 4: Keyboarding

_____1. Perform keyboarding applications.

Unit 5: Word Processing and Publishing

_____1. Perform basic word processing applications.

_____2. Utilize basic word processing skills to create business correspondence.
_____3. Explain desktop publishing application
_____4. Perform desktop publishing applications.
_____5. Create a desktop publishing document.

Unit 6: Multimedia Applications

_____1. Explain multimedia presentation applications.
_____2. Create a multimedia presentation.
_____3. Identify the appropriate uses of a digital camera.
_____4. Describe the basic operation principles of multimedia presentation accessories.

Unit 7: Career Exploration

_____1. Explore foundation skills and knowledge of academic and technical literacy and the Mississippi Career Pathways Model.
_____2. Explore careers in each of the seven Mississippi Career Clusters.

Student Competency Profile for Information and Communication Technology II

Student:_____

This record is intended to serve as a method of noting student achievement of the competencies in each unit. It can be duplicated for each student and serve as a cumulative record of competencies achieved in the course.

In the blank before each competency, place the date on which the student mastered the competency.

Unit 1: Safety and Orientation (Review and Reinforcement)

_____1. Identify course expectations, school policies, program policies, and safety procedures related to Information and Communication Technology II.
_____2. Identify student learning styles, previous knowledge, and self-awareness.
_____3. Participate in educational, occupational, and leadership opportunities.

Unit 2: Input Applications

_____1. Perform basic keyboarding techniques (ongoing).
_____2. Utilize speech recognition software (ongoing).
_____3. Utilize handwriting recognition software (ongoing).
_____4. Develop, implement, and communicate using different input technologies.

Unit 3: Technology Productivity Tools: Spreadsheet Applications

_____1. Explain spreadsheet applications.
_____2. Perform spreadsheet applications.
_____3. Create and graph spreadsheet data.

Unit 4: Technology Productivity Tools: Database Applications

_____1. Explain basic database applications.
_____2. Perform basic database applications.
_____3. Perform advanced database applications.
_____4. Design and create a database.
_____5. Integrate database application software with multiple technology productivity tools.

Unit 5: Technology Lab Management and Networking

_____1. Explain basic network components.
_____2. Practice setting up a network.
_____3. Demonstrate a strong understanding of network management.

Unit 6: Technology Productivity Tools: Design Applications

_____1. Perform design applications.
_____2. Create advanced design applications.

Unit 7: Technology Productivity Tools: Graphic Design Applications

_____1. Explain basic graphic design elements.
_____2. Use basic graphic design elements.
_____3. Create basic graphic design elements.

Unit 8: Technology Productivity Tools: Web Design Applications

_____1. Explain web design applications.
_____2. Perform basic web design applications.
_____3. Perform advanced web design applications.
_____4. Design and create a web page.

Unit 9: Technology Problem-Solving and Decision Making Tools

_____1. Create well-formulated long-term, intermediate, and short-term goals.
_____2. Develop effective time management skills.
_____3. Apply appropriate skills and techniques for improving concentration and memory.
_____4. Develop effective written, oral, and nonverbal communication skills.
_____5. Implement effective note-taking and text-reading strategies and techniques.
_____6. Develop effective test-taking skills and strategies.
_____7. Improve self-esteem.

Recommended Tools and Equipment

CAPITALIZED ITEMS

1. Computer work centers (desk and chair) (One per student, one for handicapped)
   Personal computer – to follow minimum specifications as published by MDE and to include access to the following:

   a. CD ROM
   b. Printer (1 per 2 workstations, if not networked)
   c. Internet access
2. Laser printer
3. Color inkjet printer
4. Presentation binding machine
5. 10 Electronic writing pads
6. Digital camera
7. USB memory card
8. Video camera with tripod

NON-CAPITALIZED ITEMS

1. Copy holder
2. CD writer
3. Electric 3-hole punch
4. Electric pencil sharpeners (2)
5. Electric stapler

RECOMMENDED INSTRUCTIONAL AIDS

It is recommended that instructors have access to the following items:

1. Telephone line with cordless telephone (separate telephone line for modem/fax hookup)
2. TV
3. VCR/DVD player
4. Television
5. PDA
6. Tablet PC
7. White board (minimum)
8. Trash cans
9. CD ROM storage cases
10. NetOp school software
11. Heavy duty hole punch
12. Filing cabinet
13. Electronic white board
14. Paper cutter
15. Data projector
16. Scanner with support software installed

Appendix A: 21st Century Skills Standards[1]

CLS1 Flexibility and Adaptability
CLS2 Initiative and Self-Direction
CLS3 Social and Cross-Cultural Skills
CLS4 Productivity and Accountability
CLS5 Leadership and Responsibility

Today's life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills.

CS 1 Flexibility and Adaptability

- Adapting to varied roles and responsibilities
- Working effectively in a climate of ambiguity and changing priorities

CS 2 Initiative and Self-Direction

- Monitoring one's own understanding and learning needs
- Going beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise
- Demonstrating initiative to advance skill levels toward a professional level
- Defining, prioritizing, and completing tasks without direct oversight
- Utilizing time efficiently and managing workload
- Demonstrating commitment to learning as a lifelong process

CS 3 Social and Cross-Cultural Skills

- Working appropriately and productively with others
- Leveraging the collective intelligence of groups when appropriate
- Bridging cultural differences and using differing perspectives to increase innovation and the quality of work

CS 4 Productivity and Accountability

- Setting and meeting high standards and goals for delivering quality work on time
- Demonstrating diligence and a positive work ethic (e.g., being punctual and reliable)

CS 5 Leadership and Responsibility

- Using interpersonal and problem-solving skills to influence and guide others toward a goal
- Leveraging strengths of others to accomplish a common goal
- Demonstrating integrity and ethical behavior
- Acting responsibly with the interests of the larger community in mind

[1] *21st Century Skills.* (n.d.). Washington, D.C.: Partnership for 21st Century Skills.

Appendix B: Mississippi Academic Standards

SEVENTH GRADE MATH

SGM1. Apply concepts of rational numbers, and perform basic operations emphasizing the concepts of ratio, proportion, and percent with and without the use of calculators.

a. Use the order of operations to simplify and/or evaluate whole numbers (including exponents and grouping symbols). (DOK 1)
b. Solve problems involving addition, subtraction, multiplication, and division of rational numbers. Express answers in simplest form. (DOK 2)
c. Convert among decimals, fractions, mixed numbers, and percents. (DOK 1)
d. Evaluate and estimate powers and square roots of real numbers. (DOK 2)
e. Explain the relationship between standard form and scientific notation. (DOK 1)
f. Multiply and divide numbers written in scientific notation. (DOK 1)
g. Solve real-life problems involving unit price, unit rate, sales price, sales tax, discount, simple interest, commission, and rates of commission. (DOK 1)
h. Solve contextual problems requiring the comparison, ordering, and application of integers. (DOK 2)
i. Develop a logical argument to demonstrate the 'denseness' of rational numbers. (DOK 3)

SGM2. Develop and apply the basic operations of rational numbers to algebraic and numerical tasks. Create and apply algebraic expressions and equations.

a. Recognize, describe, and state the rule of generalized numerical and geometric patterns using tables, graphs, words, and symbols. (DOK 2)
b. Solve equations that represent algebraic and real-world problems using multiple methods including the real number properties. (DOK 1)
c. Formulate algebraic expressions, equations, and inequalities to reflect a given situation and vice versa. (DOK 2)
d. Complete a function table based on a given rule and vice versa. (DOK 1)
e. Identify the following properties using variables, and apply them in solving problems. (DOK 1)
    - Zero property of multiplication
    - Inverse properties of addition/subtraction and multiplication/division
    - Commutative and associative properties of addition and multiplication
    - Identity properties of addition and multiplication
    - Distributive properties of multiplication over addition and subtraction.
f. Predict the shape of a graph from a function table. (DOK 2)

SGM3. Apply geometric relationships of angles, two- and three-dimensional shapes, and transformations.

a. Classify and compare three-dimensional shapes using their properties. (DOK 1)
b. Construct two-dimensional representations of three-dimensional objects. (DOK 2)
c. Justify the congruency or symmetry of two figures. (DOK 2)
d. Perform transformations (rigid and non-rigid motions) on two-dimensional figures using the coordinate plane. (DOK 2)

e. Create an argument using the Pythagorean Theorem principles to show that a triangle is a right triangle. (DOK 2)
f. Construct and classify angles. (DOK 2)

SGM4. Apply appropriate techniques, tools, and formulas to determine measurements with a focus on real-world problems. Recognize that formulas in mathematics are generalized statements about rules, equations, principles, or other logical mathematical relationships.

a. Convert from one unit to another, perform basic operations, and solve real-world problems using standard (English and metric) measurements within the same system. (DOK 2)
b. Use formulas and strategies, such as decomposition, to compute the perimeter and area of triangles, parallelograms, trapezoids, and the circumference and area of circles, and find the area of more complex shapes. (DOK 2)
c. Develop and justify geometric formulas for volume and surface area of cylinders, pyramids, and prisms. (DOK 3)
d. Solve problems involving scale factors using ratios and proportions. (DOK 2)

SGM5. Organize and interpret data. Analyze data to make predictions.

a. Use proportions, estimates, and percentages to construct, interpret, and make predictions about a population based on histograms or circle graph representations of data from a sample. (DOK 2)
b. Determine how outliers affect mean, median, mode, or range. (DOK 2)
c. Construct and interpret line graphs, frequency tables, circle graphs, box-and-whisker plots, and scatter plots to generalize trends from given data. (DOK 2)
d. Determine probabilities through experimentation, simulation, or calculation. (Note: Make and test conjectures and predictions by calculating the probability of an event.) (DOK 2)

PRE-ALGEBRA

PRA1. Apply concepts, and perform basic operations using real numbers in real-world contexts.

a. Define, classify, and order rational and irrational numbers and their subsets. (DOK 1)
b. Formulate and solve standard and real-life problems involving addition, subtraction, multiplication, and division of rational numbers. (DOK 2)
c. Apply the concepts of Greatest Common Factor (GCF) and Least Common Multiple (LCM) to monomials with variables. (DOK 2)
d. Simplify and evaluate expressions using order of operations, and use real number properties to justify solutions. (DOK 2)
e. Explain the rules of exponents related to multiplication and division of terms with exponents. (DOK 2)
f. Recognize and appropriately use exponential and scientific notation. (DOK 1)
g. Explain and use the inverse relationship between square roots and squares. (DOK 2)

PRA2. Apply properties to simplify algebraic expressions, solve linear equations and inequalities, and apply principles of graphing.

a. Simplify and evaluate numerical and algebraic expressions. (DOK 1)
b. Apply properties of real numbers with an emphasis on the distributive properties of multiplication over addition and subtraction. (DOK 1)

c. Solve and check equations and inequalities using one variable. (DOK 2)
d. Model inequalities (and their solutions) on a number line. (DOK 1)
e. Graph linear equations and nonlinear equations ($y = x^2$) using multiple methods including t-tables and slope-intercept. (DOK 2)
f. Given a linear graph, identify its slope as positive, negative, undefined, or zero, and interpret slope as rate of change. (DOK 2)
g. Determine slope, x-intercept, and y-intercept from a graph and/or equation in slope-intercept or standard form. (DOK 1)
h. Add, subtract, and multiply monomials and binomials. (DOK 1)
i. Predict characteristics of a graph given an equation or t-table. (DOK 2)

PRA3. Identify and apply geometric principles to polygons, angles, and two- and three-dimensional figures.

a. Locate and identify angles formed by parallel lines cut by a transversal(s) (e.g., adjacent, vertical, complementary, supplementary, corresponding, alternate interior, and alternate exterior). (DOK 1)
b. Find missing angle measurements for parallel lines cut by a transversal(s) and for a vertex of a polygon. (DOK 1)
c. Explain the Pythagorean Theorem, and apply it to solve routine and non-routine problems. (DOK 3)
d. Solve real-world and non-routine problems involving congruent and similar figures. (DOK 3)
e. Use two-dimensional representations (nets) of three-dimensional objects to describe objects from various perspectives. (DOK 2)

PRA4. Understand measurable attributes of objects, and apply various formulas in problem-solving situations.

a. Solve real-world application problems that include length, area, perimeter, and circumference using standard measurements. (DOK 2)
b. Develop, analyze, and explain methods for solving problems involving proportions, such as scaling and finding equivalent ratios. (DOK 3)
c. Use formulas and/or appropriate measuring tools to find length and angle measures (to appropriate levels of precision), perimeter, area, volume, and surface area of polygons, circles, spheres, cones, pyramids, and composite or irregular figures. (DOK 1)

PRA5. Interpret, organize, and make predictions about a variety of data using concepts of probability.

a. Use a given mean, mode, median, and range to summarize and compare data sets including investigation of the different effects that change in data values have on these measures. (DOK 2)
b. Select the appropriate measures of central tendency for a particular purpose. (DOK 2)
c. Make and list conjectures by calculating probability for experimental or simulated contexts. (DOK 3)
d. Construct and interpret scatter plots to generalize trends from given data sets. (DOK 3)

TRANSITION TO ALGEBRA

TTA1. Understand relationships between numbers and their properties, and perform operations fluently.

a. Compare and contrast the subsets of real numbers. (DOK 1)
b. Simplify and evaluate expressions using the order of operations, and use real number properties to justify solutions. (DOK 2)
c. Express, interpret, and compute numbers using scientific notation in meaningful contexts. (DOK 1)
d. Apply the concept of Greatest Common Factor (GCF) and Least Common Multiple (LCM) to monomials with variables. (DOK 2)
e. Use the inverse relationship to develop the concept of roots and perfect squares. (DOK 2)

TTA2. Understand, represent, and analyze patterns, relations, and functions.

a. Given a literal equation, solve for a specified variable of degree one. (DOK 1)
b. Explain and illustrate how changes in one variable may result in a change in another variable. (DOK 2)
c. Solve and check multi-step equations and inequalities, including distributive property, variables on both sides, and rational coefficients. (DOK 2)
d. Use real-world data to express slope as a rate of change. (DOK 2)
e. Graph solutions to linear inequalities. (DOK 2)
f. Write linear equations given slope and y-intercept or two points. (DOK 2)
g. Identify domain, range, slope, and intercepts of functions. (DOK 1)
h. Develop generalizations to characterize the behaviors of graphs (linear, quadratic, and absolute value). (DOK 2)
i. Classify and determine the degree of a polynomial, and arrange polynomials in ascending or descending order of a variable. (DOK 1)
j. Apply ratios, and use proportional reasoning to solve real-world algebraic problems. (DOK 2)
k. Add, subtract, multiply, and divide polynomial expressions. (DOK 1)
l. Analyze the relationship between x and y values, and determine whether a relation is a function. (DOK 2)

TTA3. Understand geometric principles of polygons, angles, and figures.

a. Apply the Pythagorean Theorem to solve problems. (DOK 2)
b. Apply proportional reasoning to determine similar figures, and find unknown measures. (DOK 2)

TTA4. Demonstrate and apply various formulas in problem-solving situations.

a. Solve real-world problems involving measurements (i.e., circumference, perimeter, area, volume, distance, temperature, etc.). (DOK 2)
b. Explain and apply the appropriate formula to determine length, midpoint, and slope of a segment in a coordinate plane (i.e., distance formula and Pythagorean Theorem). (DOK 2)

TTA5. Interpret data.

a. Construct graphs, make predictions, and draw conclusions from tables, line graphs, and scatter plots. (DOK 3)

b. Use a given mean, mode, median, and range to summarize and compare data sets including investigation of the different effects that change in data have on these measures of central tendency, and select the appropriate measures of central tendency for a given purpose. (DOK 2)
c. Calculate basic probability of experiments and simulations to make and test conjectures about results. (DOK 3)

ALGEBRA I

ALG1-1. Understand relationships between numbers and their properties, and perform operations fluently.

a. Apply properties of real numbers to simplify algebraic expressions, including polynomials. (DOK 1)
b. Use matrices to solve mathematical situations and contextual problems. (DOK 2)

ALG1-2. Understand, represent, and analyze patterns, relations, and functions.

a. Solve, check, and graph multi-step linear equations and inequalities in one variable, including rational coefficients in mathematical and real-world situations. (DOK 2)
b. Solve and graph absolute value equations and inequalities in one variable. (DOK 2)
c. Analyze the relationship between *x* and *y* values, determine whether a relation is a function, and identify domain and range. (DOK 2)
d. Explain and illustrate how a change in one variable may result in a change in another variable, and apply to the relationships between independent and dependent variables. (DOK 2)
e. Graph and analyze linear functions. (DOK 2)
f. Use algebraic and graphical methods to solve systems of linear equations and inequalities in mathematical and real-world situations. (DOK 2)
g. Add, subtract, multiply, and divide polynomial expressions. (DOK 1)
h. Factor polynomials by using Greatest Common Factor (GCF) and factor quadratics that have only rational roots. (DOK 1)
i. Determine the solutions to quadratic equations by using graphing, tables, completing the square, the Quadratic formula, and factoring. (DOK 1)
j. Justify why some polynomials are prime over the rational number system. (DOK 2)
k. Graph and analyze absolute value and quadratic functions. (DOK 2)
l. Write, graph, and analyze inequalities in two variables. (DOK 2)

ALG1-3. Understand how algebra and geometric representations interconnect and build on one another.

a. Apply the concept of slope to determine if lines in a plane are parallel or perpendicular. (DOK 2)
b. Solve problems that involve interpreting slope as a rate of change. (DOK 2)

ALG1-4. Demonstrate and apply various formulas in problem-solving situations.

a. Solve real-world problems involving formulas for perimeter, area, distance, and rate. (DOK 2)
b. Explain and apply the appropriate formula to determine length, midpoint, and slope of a segment in a coordinate plane. (i.e., distance formula and Pythagorean Theorem). (DOK 2)

c. Represent polynomial operations with area models. (DOK 2)

ALG1-5. Represent, analyze, and make inferences based on data with and without the use of technology.

a. Draw conclusions, and make predictions from scatter plots. (DOK 3)
b. Use linear regression to find the line-of-best fit from a given set of data. (DOK 3)

Appendix C: ACT College Readiness Standards

English

E1 Topic Development in Terms of Purpose and Focus

- Identify the basic purpose or role of a specified phrase or sentence.
- Delete a clause or sentence because it is obviously irrelevant to the essay.
- Identify the central idea or main topic of a straightforward piece of writing.
- Determine relevancy when presented with a variety of sentence-level details.
- Identify the focus of a simple essay, applying that knowledge to add a sentence that sharpens the focus or to determine if an essay has met a specified goal.
- Delete material primarily because it disturbs the flow and development of the paragraph.
- Add a sentence to accomplish a fairly straightforward purpose such as illustrating a given statement.
- Apply an awareness of the focus and purpose of a fairly involved essay to determine the rhetorical effect and suitability of an existing phrase or sentence or to determine the need to delete plausible but irrelevant material.
- Add a sentence to accomplish a subtle rhetorical purpose such as to emphasize, to add supporting detail, or to express meaning through connotation.
- Determine whether a complex essay has accomplished a specific purpose.
- Add a phrase or sentence to accomplish a complex purpose, often expressed in terms of the main focus of the essay.

E2 Organization, Unity, and Coherence

- Use conjunctive adverbs or phrases to show time relationship in simple narrative essays (e.g., then, this time, etc.).
- Select the most logical place to add a sentence in a paragraph.
- Use conjunctive adverbs or phrases to express straightforward logical relationships (e.g., first, afterward, and in response).
- Decide the most logical place to add a sentence in an essay.
- Add a sentence that introduces a simple paragraph.
- Determine the need for conjunctive adverbs or phrases to create subtle logical connections between sentences (e.g., therefore, however, and in addition).
- Rearrange the sentences in a fairly uncomplicated paragraph for the sake of logic.
- Add a sentence to introduce or conclude the essay or to provide a transition between paragraphs when the essay is fairly straightforward.
- Make sophisticated distinctions concerning the logical use of conjunctive adverbs or phrases, particularly when signaling a shift between paragraphs.
- Rearrange sentences to improve the logic and coherence of a complex paragraph.
- Add a sentence to introduce or conclude a fairly complex paragraph.
- Consider the need for introductory sentences or transitions, basing decisions on a thorough understanding of both the logic and rhetorical effect of the paragraph and essay.

E3 Word Choice in Terms of Style, Tone, Clarity, and Economy

- Revise sentences to correct awkward and confusing arrangements of sentence elements.
- Revise vague nouns and pronouns that create obvious logic problems.
- Delete obviously synonymous and wordy material in a sentence.
- Revise expressions that deviate from the style of an essay.
- Delete redundant material when information is repeated in different parts of speech (e.g., "alarmingly startled").
- Use the word or phrase most consistent with the style and tone of a fairly straightforward essay.
- Determine the clearest and most logical conjunction to link clauses.
- Revise a phrase that is redundant in terms of the meaning and logic of the entire sentence.
- Identify and correct ambiguous pronoun references.
- Use the word or phrase most appropriate in terms of the content of the sentence and tone of the essay.
- Correct redundant material that involves sophisticated vocabulary and sounds acceptable as conversational English (e.g., "an aesthetic viewpoint" versus "the outlook of an aesthetic viewpoint").
- Correct vague and wordy or clumsy and confusing writing containing sophisticated language.
- Delete redundant material that involves subtle concepts or that is redundant in terms of the paragraph as a whole.

E4 Sentence Structure and Formation

- Use conjunctions or punctuation to join simple clauses.
- Revise shifts in verb tense between simple clauses in a sentence or between simple adjoining sentences.
- Determine the need for punctuation and conjunctions to avoid awkward-sounding sentence fragments and fused sentences.
- Decide the appropriate verb tense and voice by considering the meaning of the entire sentence.
- Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing or incorrect relative pronouns, or dangling or misplaced modifiers).
- Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems.
- Maintain consistent verb tense and pronoun person on the basis of the preceding clause or sentence.
- Use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs.
- Maintain a consistent and logical use of verb tense and pronoun person on the basis of information in the paragraph or essay as a whole.
- Work comfortably with long sentences and complex clausal relationships within sentences, avoiding weak conjunctions between independent clauses and maintaining parallel structure between clauses.

E5 Conventions of Usage

- Solve such basic grammatical problems as how to form the past and past participle of irregular but commonly used verbs and how to form comparative and superlative adjectives.
- Solve such grammatical problems as whether to use an adverb or adjective form, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and which preposition to use in simple contexts.
- Recognize and use the appropriate word in frequently confused pairs such as there and their, past and passed, and led and lead.
- Use idiomatically appropriate prepositions, especially in combination with verbs (e.g., long for and appeal to).
- Ensure that a verb agrees with its subject when there is some text between the two.
- Ensure that a pronoun agrees with its antecedent when the two occur in separate clauses or sentences.
- Identify the correct past and past participle forms of irregular and infrequently used verbs, and form present-perfect verbs by using have rather than of.
- Correctly use reflexive pronouns, the possessive pronouns its and your, and the relative pronouns who and whom.
- Ensure that a verb agrees with its subject in unusual situations (e.g., when the subject-verb order is inverted or when the subject is an indefinite pronoun).
- Provide idiomatically and contextually appropriate prepositions following verbs in situations involving sophisticated language or ideas.
- Ensure that a verb agrees with its subject when a phrase or clause between the two suggests a different number for the verb.

E6 Conventions of Punctuation

- Delete commas that create basic sense problems (e.g., between verb and direct object).
- Provide appropriate punctuation in straightforward situations (e.g., items in a series).
- Delete commas that disturb the sentence flow (e.g., between modifier and modified element).
- Use commas to set off simple parenthetical phrases.
- Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause).
- Use punctuation to set off complex parenthetical phrases.
- Recognize and delete unnecessary commas based on a careful reading of a complicated sentence (e.g., between the elements of a compound subject or compound verb joined by and).
- Use apostrophes to indicate simple possessive nouns.
- Recognize inappropriate uses of colons and semicolons.
- Use commas to set off a nonessential/nonrestrictive appositive or clause.
- Deal with multiple punctuation problems (e.g., compound sentences containing unnecessary commas and phrases that may or may not be parenthetical).
- Use an apostrophe to show possession, especially with irregular plural nouns.
- Use a semicolon to indicate a relationship between closely related independent clauses.
- Use a colon to introduce an example or an elaboration.

Math

M1 Basic Operations and Applications

- Perform one-operation computation with whole numbers and decimals.
- Solve problems in one or two steps using whole numbers.
- Perform common conversions (e.g., inches to feet or hours to minutes).
- Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent.
- Solve some routine two-step arithmetic problems.
- Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average.
- Solve multi-step arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour).
- Solve word problems containing several rates, proportions, or percentages.
- Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings).

M2 Probability, Statistics, and Data Analysis

- Calculate the average of a list of positive whole numbers.
- Perform a single computation using information from a table or chart.
- Calculate the average of a list of numbers.
- Calculate the average, given the number of data values and the sum of the data values.
- Read tables and graphs.
- Perform computations on data from tables and graphs.
- Use the relationship between the probability of an event and the probability of its complement.
- Calculate the missing data value, given the average and all data values but one.
- Translate from one representation of data to another (e.g., a bar graph to a circle graph).
- Determine the probability of a simple event.
- Exhibit knowledge of simple counting techniques.*
- Calculate the average, given the frequency counts of all the data values.
- Manipulate data from tables and graphs.
- Compute straightforward probabilities for common situations.
- Use Venn diagrams in counting.*
- Calculate or use a weighted average.
- Interpret and use information from figures, tables, and graphs.
- Apply counting techniques.
- Compute a probability when the event and/or sample space is not given or obvious.
- Distinguish between mean, median, and mode for a list of numbers.
- Analyze and draw conclusions based on information from figures, tables, and graphs.
- Exhibit knowledge of conditional and joint probability.

M3 Numbers: Concepts and Properties

- Recognize equivalent fractions and fractions in lowest terms.

- Recognize one-digit factors of a number.
- Identify a digit's place value.
- Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor.
- Find and use the least common multiple.
- Order fractions.
- Work with numerical factors.
- Work with scientific notation.
- Work with squares and square roots of numbers.
- Work problems involving positive integer exponents.*
- Work with cubes and cube roots of numbers.*
- Determine when an expression is undefined.*
- Exhibit some knowledge of the complex numbers.†
- Apply number properties involving prime factorization.
- Apply number properties involving even/odd numbers and factors/multiples.
- Apply number properties involving positive/negative numbers.
- Apply rules of exponents.
- Multiply two complex numbers.†
- Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers.
- Exhibit knowledge of logarithms and geometric sequences.
- Apply properties of complex numbers.

M4 Expressions, Equations, and Inequalities

- Exhibit knowledge of basic expressions (e.g., identify an expression for a total as b + g).
- Solve equations in the form x + a = b, where a and b are whole numbers or decimals.
- Substitute whole numbers for unknown quantities to evaluate expressions.
- Solve one-step equations having integer or decimal answers.
- Combine like terms (e.g., 2x + 5x).
- Evaluate algebraic expressions by substituting integers for unknown quantities.
- Add and subtract simple algebraic expressions.
- Solve routine first-degree equations.
- Perform straightforward word-to-symbol translations.
- Multiply two binomials.*
- Solve real-world problems using first-degree equations.
- Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions).
- Identify solutions to simple quadratic equations.
- Add, subtract, and multiply polynomials.*
- Factor simple quadratics (e.g., the difference of squares and perfect square trinomials).*
- Solve first-degree inequalities that do not require reversing the inequality sign.*
- Manipulate expressions and equations.
- Write expressions, equations, and inequalities for common algebra settings.
- Solve linear inequalities that require reversing the inequality sign.
- Solve absolute value equations.

- Solve quadratic equations.
- Find solutions to systems of linear equations.
- Write expressions that require planning and/or manipulating to accurately model a situation.
- Write equations and inequalities that require planning, manipulating, and/or solving.
- Solve simple absolute value inequalities.

M5 Graphical Representations

- Identify the location of a point with a positive coordinate on the number line.
- Locate points on the number line and in the first quadrant.
- Locate points in the coordinate plane.
- Comprehend the concept of length on the number line.*
- Exhibit knowledge of slope.*
- Identify the graph of a linear inequality on the number line.*
- Determine the slope of a line from points or equations.*
- Match linear graphs with their equations.*
- Find the midpoint of a line segment.*
- Interpret and use information from graphs in the coordinate plane.
- Match number line graphs with solution sets of linear inequalities.
- Use the distance formula.
- Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point.
- Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle).†
- Match number line graphs with solution sets of simple quadratic inequalities.
- Identify characteristics of graphs based on a set of conditions or on a general equation such as y = ax2 + c.
- Solve problems integrating multiple algebraic and/or geometric concepts.
- Analyze and draw conclusions based on information from graphs in the coordinate plane.

M6 Properties of Plane Figures

- Exhibit some knowledge of the angles associated with parallel lines.
- Find the measure of an angle using properties of parallel lines.
- Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°).
- Use several angle properties to find an unknown angle measure.
- Recognize Pythagorean triples.*
- Use properties of isosceles triangles.*
- Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles.
- Use the Pythagorean Theorem.
- Draw conclusions based on a set of conditions.
- Solve multi-step geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas.
- Use relationships among angles, arcs, and distances in a circle.

M7 Measurement

- Estimate or calculate the length of a line segment based on other lengths given on a geometric figure.
- Compute the perimeter of polygons when all side lengths are given.
- Compute the area of rectangles when whole number dimensions are given.
- Compute the area and perimeter of triangles and rectangles in simple problems.
- Use geometric formulas when all necessary information is given.
- Compute the area of triangles and rectangles when one or more additional simple steps are required.
- Compute the area and circumference of circles after identifying necessary information.
- Compute the perimeter of simple composite geometric figures with unknown side lengths.*
- Use relationships involving area, perimeter, and volume of geometric figures to compute another measure.
- Use scale factors to determine the magnitude of a size change.
- Compute the area of composite geometric figures when planning or visualization is required.

M8 Functions

- Evaluate quadratic functions, expressed in function notation, at integer values.
- Evaluate polynomial functions, expressed in function notation, at integer values.†
- Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths.†
- Evaluate composite functions at integer values.†
- Apply basic trigonometric ratios to solve right-triangle problems.†
- Write an expression for the composite of two simple functions.†
- Use trigonometric concepts and basic identities to solve problems.†
- Exhibit knowledge of unit circle trigonometry.†
- Match graphs of basic trigonometric functions with their equations.

Notes:

- Students who score in the 1–12 range are most likely beginning to develop the knowledge and skills assessed in the other ranges.
- Standards followed by an asterisk (*) apply to the PLAN and ACT Mathematics Tests only.
- Standards followed by a dagger (†) apply to the ACT Mathematics Test only.

Reading

R1 Main Ideas and Author's Approach

- Recognize a clear intent of an author or narrator in uncomplicated literary narratives.
- Identify a clear main idea or purpose of straightforward paragraphs in uncomplicated literary narratives.
- Infer the main idea or purpose of straightforward paragraphs in uncomplicated literary narratives.
- Understand the overall approach taken by an author or narrator (e.g., point of view and kinds of evidence used) in uncomplicated passages.
- Identify a clear main idea or purpose of any paragraph or paragraphs in uncomplicated passages.

- Infer the main idea or purpose of straightforward paragraphs in more challenging passages.
- Summarize basic events and ideas in more challenging passages.
- Understand the overall approach taken by an author or narrator (e.g., point of view and kinds of evidence used) in more challenging passages.
- Infer the main idea or purpose of more challenging passages or their paragraphs.
- Summarize events and ideas in virtually any passage.
- Understand the overall approach taken by an author or narrator (e.g., point of view and kinds of evidence used) in virtually any passage.
- Identify clear main ideas or purposes of complex passages or their paragraphs.

R2 Supporting Details

- Locate basic facts (e.g., names, dates, and events) clearly stated in a passage.
- Locate simple details at the sentence and paragraph level in uncomplicated passages.
- Recognize a clear function of a part of an uncomplicated passage.
- Locate important details in uncomplicated passages.
- Make simple inferences about how details are used in passages.
- Locate important details in more challenging passages.
- Locate and interpret minor or subtly stated details in uncomplicated passages.
- Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages.
- Locate and interpret minor or subtly stated details in more challenging passages.
- Use details from different sections of some complex informational passages to support a specific point or argument.
- Locate and interpret details in complex passages.
- Understand the function of a part of a passage when the function is subtle or complex.

R3 Sequential, Comparative, and Cause–Effect Relationships

- Determine when (e.g., first, last, before, or after) or if an event occurred in uncomplicated passages.
- Recognize clear cause–effect relationships described within a single sentence in a passage.
- Identify relationships between main characters in uncomplicated literary narratives.
- Recognize clear cause–effect relationships within a single paragraph in uncomplicated literary narratives.
- Order simple sequences of events in uncomplicated literary narratives.
- Identify clear relationships between people, ideas, and so on in uncomplicated passages.
- Identify clear cause–effect relationships in uncomplicated passages.
- Order sequences of events in uncomplicated passages.
- Understand relationships between people, ideas, and so on in uncomplicated passages.
- Identify clear relationships between characters, ideas, and so on in more challenging literary narratives.
- Understand implied or subtly stated cause–effect relationships in uncomplicated passages.
- Identify clear cause–effect relationships in more challenging passages.
- Order sequences of events in more challenging passages.
- Understand the dynamics between people, ideas, and so on in more challenging passages.
- Understand implied or subtly stated cause–effect relationships in more challenging passages.

- Order sequences of events in complex passages.
- Understand the subtleties in relationships between people, ideas, and so on in virtually any passage.
- Understand implied, subtle, or complex cause–effect relationships in virtually any passage.

R4 Meaning of Words

- Understand the implication of a familiar word or phrase and of simple descriptive language.
- Use context to understand basic figurative language.
- Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in uncomplicated passages.
- Use context to determine the appropriate meaning of virtually any word, phrase, or statement in uncomplicated passages.
- Use context to determine the appropriate meaning of some figurative and nonfigurative words, phrases, and statements in more challenging passages.
- Determine the appropriate meaning of words, phrases, or statements from figurative or somewhat technical contexts.
- Determine, even when the language is richly figurative and the vocabulary is difficult, the appropriate meaning of context-dependent words, phrases, or statements in virtually any passage.

R5 Generalizations and Conclusions

- Draw simple generalizations and conclusions about the main characters in uncomplicated literary narratives.
- Draw simple generalizations and conclusions about people, ideas, and so on in uncomplicated passages.
- Draw generalizations and conclusions about people, ideas, and so on in uncomplicated passages.
- Draw simple generalizations and conclusions using details that support the main points of more challenging passages.
- Draw subtle generalizations and conclusions about characters, ideas, and so on in uncomplicated literary narratives.
- Draw generalizations and conclusions about people, ideas, and so on in more challenging passages.
- Use information from one or more sections of a more challenging passage to draw generalizations and conclusions about people, ideas, and so on.
- Draw complex or subtle generalizations and conclusions about people, ideas, and so on, often by synthesizing information from different portions of the passage.
- Understand and generalize about portions of a complex literary narrative.

Science

S1 Interpretation of Data

- Select a single piece of data (numerical or non-numerical) from a simple data presentation (e.g., a table or graph with two or three variables or a food web diagram).
- Identify basic features of a table, graph, or diagram (e.g., headings, units of measurement, or axis labels).
- Select two or more pieces of data from a simple data presentation.

- Understand basic scientific terminology.
- Find basic information in a brief body of text.
- Determine how the value of one variable changes as the value of another variable changes in a simple data presentation.
- Select data from a complex data presentation (e.g., a table or graph with more than three variables or a phase diagram).
- Compare or combine data from a simple data presentation (e.g., order or sum data from a table).
- Translate information into a table, graph, or diagram.
- Compare or combine data from two or more simple data presentations (e.g., categorize data from a table using a scale from another table).
- Compare or combine data from a complex data presentation.
- Interpolate between data points in a table or graph.
- Determine how the value of one variable changes as the value of another variable changes in a complex data presentation.
- Identify and/or use a simple (e.g., linear) mathematical relationship between data.
- Analyze given information when presented with new, simple information.
- Compare or combine data from a simple data presentation with data from a complex data presentation.
- Identify and/or use a complex (e.g., nonlinear) mathematical relationship between data.
- Extrapolate from data points in a table or graph.
- Compare or combine data from two or more complex data presentations.
- Analyze given information when presented with new, complex information.

S2 Scientific Investigation

- Understand the methods and tools used in a simple experiment.
- Understand the methods and tools used in a moderately complex experiment.
- Understand a simple experimental design.
- Identify a control in an experiment.
- Identify similarities and differences between experiments.
- Understand the methods and tools used in a complex experiment.
- Understand a complex experimental design.
- Predict the results of an additional trial or measurement in an experiment.
- Determine the experimental conditions that would produce specified results.
- Determine the hypothesis for an experiment.
- Identify an alternate method for testing a hypothesis.
- Understand precision and accuracy issues.
- Predict how modifying the design or methods of an experiment will affect results.
- Identify an additional trial or experiment that could be performed to enhance or evaluate experimental results.

S3 Evaluation of Models, Inferences, and Experimental Results

- Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation or a model.
- Identify key issues or assumptions in a model.

- Select a simple hypothesis, prediction, or conclusion that is supported by two or more data presentations or models.
- Determine whether given information supports or contradicts a simple hypothesis or conclusion and why.
- Identify strengths and weaknesses in one or more models.
- Identify similarities and differences between models.
- Determine which model(s) is(are) supported or weakened by new information.
- Select a data presentation or a model that supports or contradicts a hypothesis, prediction, or conclusion.
- Select a complex hypothesis, prediction, or conclusion that is supported by a data presentation or model.
- Determine whether new information supports or weakens a model and why.
- Use new information to make a prediction based on a model.
- Select a complex hypothesis, prediction, or conclusion that is supported by two or more data presentations or models.
- Determine whether given information supports or contradicts a complex hypothesis or conclusion and why.

Writing

W1 Expressing Judgments

- Show a little understanding of the persuasive purpose of the task, but neglect to take or to maintain a position on the issue in the prompt.
- Show limited recognition of the complexity of the issue in the prompt.
- Show a basic understanding of the persuasive purpose of the task by taking a position on the issue in the prompt, but do not maintain that position.
- Show a little recognition of the complexity of the issue in the prompt by acknowledging, but only briefly describing, a counterargument to the writer's position.
- Show understanding of the persuasive purpose of the task by taking a position on the issue in the prompt.
- Show some recognition of the complexity of the issue in the prompt by doing the following:
    - Acknowledging counterarguments to the writer's position
    - Providing some response to counter-arguments to the writer's position
- Show clear understanding of the persuasive purpose of the task by taking a position on the specific issue in the prompt and offering a broad context for discussion.
- Show recognition of the complexity of the issue in the prompt by doing the following:
    - Partially evaluating implications and/or complications of the issue
    - Posing and partially responding to counter-arguments to the writer's position
- Show clear understanding of the persuasive purpose of the task by taking a position on the specific issue in the prompt and offering a critical context for discussion.
- Show understanding of the complexity of the issue in the prompt by doing the following:
    - Examining different perspectives
    - Evaluating implications or complications of the issue
    - Posing and fully discussing counter-arguments to the writer's position

W2 Focusing on the Topic

- Maintain a focus on the general topic in the prompt through most of the essay.

- Maintain a focus on the general topic in the prompt throughout the essay.
- Maintain a focus on the general topic in the prompt throughout the essay, and attempt a focus on the specific issue in the prompt.
- Present a thesis that establishes focus on the topic.
- Maintain a focus on discussion of the specific topic and issue in the prompt throughout the essay.
- Present a thesis that establishes a focus on the writer's position on the issue.
- Maintain a clear focus on discussion of the specific topic and issue in the prompt throughout the essay.
- Present a critical thesis that clearly establishes the focus on the writer's position on the issue.

W3 Developing a Position

- Offer a little development, with one or two ideas; if examples are given, they are general and may not be clearly relevant; resort often to merely repeating ideas.
- Show little or no movement between general and specific ideas and examples.
- Offer limited development of ideas using a few general examples; resort sometimes to merely repeating ideas.
- Show little movement between general and specific ideas and examples.
- Develop ideas by using some specific reasons, details, and examples.
- Show some movement between general and specific ideas and examples.
- Develop most ideas fully, using some specific and relevant reasons, details, and examples.
- Show clear movement between general and specific ideas and examples.
- Develop several ideas fully, using specific and relevant reasons, details, and examples.
- Show effective movement between general and specific ideas and examples.

W4 Organizing Ideas

- Provide a discernible organization with some logical grouping of ideas in parts of the essay.
- Use a few simple and obvious transitions.
- Present a discernible, though minimally developed, introduction and conclusion.
- Provide a simple organization with logical grouping of ideas in parts of the essay.
- Use some simple and obvious transitional words, though they may at times be inappropriate or misleading.
- Present a discernible, though underdeveloped, introduction and conclusion.
- Provide an adequate but simple organization with logical grouping of ideas in parts of the essay but with little evidence of logical progression of ideas.
- Use some simple and obvious, but appropriate, transitional words and phrases.
- Present a discernible introduction and conclusion with little development.
- Provide unity and coherence throughout the essay, sometimes with a logical progression of ideas.
- Use relevant, though at times simple and obvious, transitional words and phrases to convey logical relationships between ideas.
- Present a somewhat developed introduction and conclusion.
- Provide unity and coherence throughout the essay, often with a logical progression of ideas.
- Use relevant transitional words, phrases, and sentences to convey logical relationships between ideas.

- Present a well-developed introduction and conclusion.

W5 Using Language

- Show limited control of language by doing the following:
    - Correctly employing some of the conventions of standard English grammar, usage, and mechanics but with distracting errors that sometimes significantly impede understanding
    - Using simple vocabulary
    - Using simple sentence structure
    - Correctly employing some of the conventions of standard English grammar, usage, and mechanics but with distracting errors that sometimes impede understanding
    - Using simple but appropriate vocabulary
    - Using a little sentence variety, though most sentences are simple in structure
    - Correctly employing many of the conventions of standard English grammar, usage, and mechanics but with some distracting errors that may occasionally impede understanding
    - Using appropriate vocabulary
    - Using some varied kinds of sentence structures to vary pace
    - Correctly employing most conventions of standard English grammar, usage, and mechanics, with a few distracting errors but none that impede understanding
    - Using some precise and varied vocabulary
    - Using several kinds of sentence structures to vary pace and to support meaning
    - Correctly employing most conventions of standard English grammar, usage, and mechanics, with just a few, if any, errors
    - Using precise and varied vocabulary
    - Using a variety of sentence structures to vary pace and to support meaning

Appendix D: National Industry Standards

IC^3 2005 Standards

Computer Fundamentals

CF1 Computer Hardware:

a. Identify types of computers, how they process information and how individual computers interact with other computing systems and devices
b. Identify the function of computer hardware components
c. Identify the factors that go into an individual or organizational decision on how to purchase computer equipment
d. Identify how to maintain computer equipment and solve common problems relating to computer hardware

CF2 Computer Software:

a. Identify how software and hardware work together to perform computing tasks and how software is developed and upgraded
b. Identify different types of software, general concepts relating to software categories, and the tasks to which each type of software is most suited or not suited
c. Identify fundamental concepts relating to database applications

CF3 Using an Operating System:

a. Identify what an operating system is and how it works, and solve common problems related to operating systems
b. Manipulate and control the Windows desktop, files and disks
c. Identify how to change system settings, install and remove software

Key Applications

KA1 Common Program Functions:

a. Be able to start and exit a Windows application and utilize sources of online help
b. Identify common on-screen elements of Windows applications, change application settings and manage files within an application
c. Perform common editing and formatting functions
d. Perform common printing functions

KA2 Word Processing Functions:

a. Format text and documents including the ability to use automatic formatting tools
b. Insert, edit and format tables in a document

KA3 Spreadsheet Functions:

a. Modify worksheet data and structure and format data in a worksheet

b. Sort data, manipulate data using formulas and functions and add and modify charts in a worksheet

DA4 Presentation Software:

a. Create and format simple presentations

Living Online

LO1 Networks and the Internet:

a. Identify network fundamentals and the benefits and risks of network computing
b. Identify the relationship between computer networks, other communications networks (like the telephone network) and the Internet

LO2 Electronic Mail:

a. Identify how electronic mail works
b. Identify how to use an electronic mail application
c. Identify the appropriate use of e-mail and e-mail related "netiquette"

LO3 Using the Internet:

a. Identify different types of information sources on the Internet
b. Be able to use a Web browsing application
c. Be able to search the Internet for information

LO4 The Impact of Computing and the Internet on Society:

a. Identify how computers are used in different areas of work, school, and home
b. Identify the risks of using computer hardware and software
c. Identify how to use the Internet safely, legally, and responsibly

Appendix E: National Educational Technology Standards for Students

T1 Creativity and Innovation
Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

T2 Communication and Collaboration
Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

T3 Research and Information Fluency
Students apply digital tools to gather, evaluate, and use information.

T4 Critical Thinking, Problem Solving, and Decision Making
Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

T5 Digital Citizenship
Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

T6 Technology Operations and Concepts
Students demonstrate a sound understanding of technology concepts, systems, and operations.