

Curriculum: Computer Technology I and II

Curricular Unit: Computer Repair – Computer Hardware Components

Instructional Unit: A. Design, build, maintain, troubleshoot, and repair computer hardware components

Standard Alignments (Section 2)

GLE/CLE: N/A

Knowledge: (CA) 3,6 (MA) 1

CCSS: 11-12.RST.2; 11-12.RST.3; 11-12.RST.9; 11-12.WHST.1; N-Q.1

NETS: 1a; 6a,c

Performance: 1.4, 3.4, 4.6

Unit (Section 3)

Learning Targets:

- Differentiate between motherboard components, their purposes, and properties
- **Compare and contrast various connection interfaces and explain their purpose**
- Identify cables by their type or connection
- Differentiate among various CPU types and features and select the appropriate cooling method
- Compare and contrast RAM types and features
- Install/replace expansion cards
- Install basic and dynamic storage devices based on expected use and specific needs
- Troubleshoot basic and dynamic storage devices with appropriate tools
- Calculate wattage needs and install an appropriate power supply based on a given scenario
- Perform preventive maintenance procedures using appropriate hardware tools
- **Troubleshoot common problems related to motherboards, RAM, CPU, expansion cards, and power with appropriate tools**
- **Demonstrate appropriate safety procedures when repairing or performing physical maintenance on a computer**
- Compare and contrast the components within the display of a laptop
- Compare and contrast laptop features

Board Approved 8-3-15

- Install laptop hardware and components
- Troubleshoot and repair common laptop issues while adhering to the appropriate industry procedures
- Evaluate and select appropriate components for a custom configuration, to meet customer specifications or needs
- Explain environmental impacts and the purpose of environmental controls in computer technology
- Compare and contrast common physical security threats
- Describe and demonstrate common physical security methods to secure a workstation/laptop
- Troubleshoot common physical security issues with appropriate tools and best practices
- Describe and demonstrate the appropriate electronic component disposal method

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - Unit terms
 - Review questions
 - Fill-in-the-blank questions
 - Hands-on activities from the text (Ch. 1-9, 14)
- Summative:
 - Unit Tests from Ch. 1-9, 14
 - Computer Design and Build Project

Sample Assessment Questions:

- While upgrading Windows XP to 7, you see a partition on the hard drive that does not have a drive letter and cannot be accessed from within the Disk Management tool. What should you do?
 - a. Right-click on the partition and select Initialize.
 - b. Right-click on the partition and select Check Now.
 - c. Right-click on the partition and select Import Foreign Disk.
 - d. Nothing. This is the HPA.

- Your friend Sally quit her job as a computer programmer and has decided to become an independent programming contractor. She is planning to upgrade her desktop computer to better handle the programming tasks including new hard drives and a raid controller. While the programming that she is going to be doing is not processor or memory intensive, it is very important and requires high-fault tolerance. What kind of RAID would you recommend she configure on her computer? Give 4 reasons why she should follow your RAID recommendation over other types of RAID.

Instructional Resources/Tools:

- Text: *The Complete A+ Guide to PC Repair 5th Ed.*
(**Note: This text will need to be updated for the 2016-17 school year to reflect updated and changing technologies)
- Teacher computer and SMART Board to:
 - present information
 - lead class discussions
- Computer Technician tool kits
- Anti-static devices
- Student lab computers with internet access for hands-on activities
- Student-designed computer kits
(**Note: These computer kits are purchased with Enhancement Grant money)
- Students will design these computers, component by component, based on:
 - hardware requirements for needs
 - component performance
 - component compatibility with overall computer
 - budget
- These computers become the classroom computers and then the student lab computers as their useful life-cycle progresses and they are replaced by the next kits

Cross Curricular Connections:

- ELA:
 - Technical reading
 - Writing
 - Discussion
- Math: Number sense

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Computer Repair – Peripherals

Instructional Unit: B. Configure, install, troubleshoot, maintain, and repair computer peripherals

Standard Alignments (Section 2)

GLE/CLE: N/A

Knowledge: (CA) 3,6 (MA) 1

CCSS: 11-12.SL.2; 11-12.RST.3; 11-12.WHST.4; N-Q.1

NETS: 6a,c,d

Performance: 1.4, 3.4, 4.6

Unit (Section 3)

Learning Targets:

- **Install and configure various peripheral devices**
- Explain the differences between the various printer types and summarize the associated imaging process
- Install and configure a printer on a Windows computer
- Perform printer maintenance
- Troubleshoot printers with appropriate tools
- Evaluate types and features of display devices
- Install a display device
- Troubleshoot common video and display issues
- Install and configure common peripherals such as a mouse and keyboard
- Install and configure external storage devices

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Board Approved 8-3-15

Assessments/Evaluations:

- Formative – Ch. 5-19:
 - Unit terms
 - Review questions
 - Fill-in-the-blank questions
 - Hands-on activities from the text
- Summative – Ch. 5-19: Unit tests from

Sample Assessment Questions:

- Where can a UART chip be located?
 - a. on an internal modem adapter
 - b. on an adapter for a serial port
 - c. on a motherboard with a built-in serial port
 - d. all of the above
- A client wants to get a fax modem for their desktop computer. Would you suggest an internal or an external modem? List 3 questions you need answered to make your recommendation. Also, list one advantage for each type of modem.

Instructional Resources/Tools:

- Text: *The Complete A+ Guide to PC Repair 5th Ed.*
(**Note: This text will need to be updated for the 2016-17 school year to reflect updated and changing technologies)
 - Teacher computer and SMART Board to:
 - present information
 - lead class discussions
 - Computer technician tool kits
 - Anti-static devices
 - Student lab computers with:
 - internet access
 - peripherals:
 - keyboard
 - monitors
 - mouse
 - external devices:
 - scanner
 - modems
 - printers
- for hands-on activities

Cross Curricular Connections:

- ELA:
 - Technical reading
 - Writing
 - Discussion
- Math: Number sense

Depth of Knowledge (Section 5)

DOK: 3

Curriculum: Computer Technology I and II

Curricular Unit: Computer Repair – Operating System and Software

Instructional Unit: C. Configure, install, troubleshoot, maintain, and repair computer software

Standard Alignments (Section 2)

GLE/CLE: N/A

Knowledge: (CA) 3,6 (MA) 1

CCSS: 11-12.RST.1; 11-12.RST.3; 11-12.WHST.4; : N-Q.1

NETS: 6a-c

Performance: 1.4, 3.4, 4.6

Unit (Section 3)

Learning Targets:

- Configure and apply BIOS settings
- Configure basic and dynamic storage devices and use appropriate media
- Compare and contrast the features and requirements of various Microsoft Operating Systems
- **Install and configure the Microsoft Operating System using the most appropriate method**
- Configure and install software/drivers for integrated motherboard computer components
- Configure laptop hardware and components
- Describe and demonstrate appropriate data destruction and data disposal methods
- Use appropriate command line tools to maintain/repair a computer or operating system
- Troubleshoot operating system problems with appropriate tools
- **Use appropriate operating system features, utility programs, and software tools to maintain/repair a computer or operating system**

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity

Board Approved 8-3-15

<ul style="list-style-type: none"> • The teacher will demonstrate examples of content specific to the learning targets • Students will design computers, component-by-component, based on hardware requirements for: <ul style="list-style-type: none"> • needs • component performance • component compatibility with overall computer and operating system • budget
<p>Assessments/Evaluations:</p> <ul style="list-style-type: none"> • Formative – Ch. 3, 5, 7, 10-12, 14: <ul style="list-style-type: none"> • Unit terms • Review questions • Fill-in-the-blank questions • Hands-on activities from the text • Windows Installation and Configuration activity • Summative – Ch. 3, 5, 7, 10-12, 14: <ul style="list-style-type: none"> • Unit tests • Computer Design and Build project
<p>Sample Assessment Questions:</p> <ul style="list-style-type: none"> • What user group is allowed to perform driver rollback? <ol style="list-style-type: none"> a. Administrators b. Microsoft rollback user c. Rollback supervisors d. All users • A client has a 5-year-old laptop that is running slow. After a thorough check for viruses and malware you decide that it isn't infected. List 5 things you would do to make the computer run faster or at least as fast as possible for that machine. In that list of 5 things, be sure that 4 of them are not hardware updates.
<p>Instructional Resources/Tools:</p> <ul style="list-style-type: none"> • Text: <i>The Complete A+ Guide to PC Repair 5th Ed.</i> (**Note: This text will need to be updated for the 2016-17 school year to reflect updated and changing technologies) • Teacher computer and SMART Board to: <ul style="list-style-type: none"> • present information • lead class discussions • Student lab computers with internet access for hands-on activities • Student-designed computer kits: These computers become the classroom computers and then the student lab computers as their useful life-cycle progresses and they are replaced by the next kits (**Note: These computer kits are purchased with enhancement grant money)
<p>Cross Curricular Connections:</p> <ul style="list-style-type: none"> • ELA: <ul style="list-style-type: none"> • Technical reading • Writing • Discussion • Math: Number sense

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Computer Repair – Soft Skills

Instructional Unit: D. Soft skills as it relates to computer technology

Standard Alignments (Section 2)

GLE/CLE: N/A

Knowledge: (CA) 3,6

CCSS: 11-12.SL.2; 11-12.RST.3; 11-12.WHST.4

NETS: 5b,c,d

Performance: 1.4, 3.2, 4.6, 4.7

Unit (Section 3)

Learning Targets:

- **Explain the characteristics that comprise a good computer technician**
- Describe and demonstrate active listening skills as it relates to computer technology
- Explain the benefits of and demonstrate the “One Thing at a Time” principle as it relates to computer technology
- Explain the benefits of and demonstrate good written communication skills
- Explain the benefits of and demonstrate good teamwork characteristics
- Explain the characteristics of good phone communication skills
- Explain the benefits of a good attitude as it relates to computer technology
- Explain the benefits of a good work ethic as it relates to computer technology
- Describe the characteristics and benefits of mentoring as it relates to computer technology
- Describe and demonstrate the concept of staying current as it relates to computer technology
- Describe how to avoid burnout as it relates to computer technology
- Describe and demonstrate the concept of being proactive as it relates to computer technology
- Describe how to deal with irate customers as it relates to computer technology
- Explain the fundamentals of dealing with prohibited content/activity situations from a computer technician’s perspective

Board Approved 8-3-15

<p>Instructional Strategies:</p> <ul style="list-style-type: none"> Content is introduced with a teacher-guided lecture/demonstration and discussion: <ul style="list-style-type: none"> Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions Student note taking – students will summarize and organize information in a note-taking activity The teacher will demonstrate examples of content specific to the learning targets
<p>Assessments/Evaluations:</p> <ul style="list-style-type: none"> Formative – Ch. 1-14: <ul style="list-style-type: none"> Unit terms Review questions Fill-in-the-blank questions Hands-on activities from the text Summative – Ch. 1-14: <ul style="list-style-type: none"> Unit tests
<p>Sample Assessment Questions:</p> <ul style="list-style-type: none"> List or explain 5 ways to prevent burnout. Explain what a ‘gun slinger’ technician is. List and explain 4 disadvantages to this type of technical approach to fixing computers.
<p>Instructional Resources/Tools:</p> <ul style="list-style-type: none"> Text: <i>The Complete A+ Guide to PC Repair 5th Ed.</i> (**Note: This text will need to be updated for the 2016-17 school year to reflect updated and changing technologies) Teacher computer and SMART Board to: <ul style="list-style-type: none"> present information lead class discussions Student lab computers with internet access for hands-on activities
<p>Cross Curricular Connections:</p> <ul style="list-style-type: none"> ELA: <ul style="list-style-type: none"> Technical reading Writing Discussion

Depth of Knowledge (Section 5)

DOK: 3

Curriculum: Computer Technology I and II

Curricular Unit: Networking – Introductory Networking Concepts

Instructional Unit: E. Compare and explain basic networking concepts

Standard Alignments (Section 2)

GLE/CLE: N/A

Knowledge: (CA) 3,6 (MA) 1,3

CCSS: 11-12.RST.2; 11-12.RST.3; 11-12.RST.9; N-Q.1; S-CP.5

NETS: 6a,d

Performance: 3.2-3.4

Unit (Section 3)

Learning Targets:

- Compare the layers of the OSI and TCP/IP Models
- Classify how applications, devices, and protocols relate to the OSI Model layers
- Explain the purpose and properties of IP addressing
- Explain the purpose and properties of routing and switching
- Identify common TCP and UDP default ports
- Explain the function of common networking protocols
- Summarize DNS concepts and components
- Given a scenario, implement network troubleshooting methodology
- Identify virtual network components

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration/video lesson and discussion:
 - Classroom lecture/demonstration/video lesson and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative: Lab simulation activities from the CompTIA Network+ N10-005 Network Simulator
- Summative: Introductory Networking Concepts test

Board Approved 8-3-15

Sample Assessment Questions:

- Match the TCP/IP model layer to the description that best matches a function of that layer.

Instructional Resources/Tools:

- Teacher computer and SMART Board to:
 - present information
 - lead class discussions
- CompTIA Network+ N10-005 Network Simulator (Includes video lessons)
- Student lab computers with internet access for hands-on activities

Cross Curricular Connections:

- ELA:
 - Technical reading
 - Writing
 - Discussion
- Math:
 - Number sense
 - Interpreting data
 - Conditional probability

Depth of Knowledge (Section 5)

DOK: 3

Curriculum: Computer Technology I and II

Curricular Unit: Networking – Network Installation and Configuration

Instructional Unit: F. Install, configure, and troubleshoot basic networks

Standard Alignments (Section 2)

GLE/CLE: N/A

Knowledge: (CA) 3,6 (MA) 1,3

CCSS: 11-12.RST.2; 11-12.RST.3; 11-12.RST.9; N-Q.1; S-IC.2

NETS: 6a,c,d

Performance: 3.2-3.4

Unit (Section 3)

Learning Targets:

- Given a scenario, install and configure routers and switches
- **Given a scenario, install and configure a wireless network**
- Explain the purpose and properties of DHCP
- Explain SOHO Router Network User Security
- Given a scenario, troubleshoot common wireless problems
- Given a set of requirements, plan and implement a basic SOHO network

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration/video lesson and discussion:
 - Classroom lecture/demonstration/video lesson and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - Lab simulation activities from CompTIA Network+ N10-005 Network Simulator
 - Wireless Router activity – Part B
- Summative: Networking Installation and Configuration test

Sample Assessment Questions:

- Explain global configuration mode and its effects.

Instructional Resources/Tools:

- Teacher computer and SMART Board to:
 - present information
 - lead class discussions
- CompTIA Network+ N10-005 Network Simulator (Includes video lessons)
- Student lab computers with internet access for hands-on activities
- Variety of wireless routers for comparison in Wireless Router activity

Cross Curricular Connections:

- Math:
 - Number sense
 - Data simulation
- ELA:
 - Technical reading
 - Writing
 - Discussion

Depth of Knowledge (Section 5)

DOK: 3

Curriculum: Computer Technology I and II

Curricular Unit: Networking – Network Media and Topologies

Instructional Unit: G. Identify, categorize, compare and contrast different network media and topologies

Standard Alignments (Section 2)

GLE/CLE: N/A

Knowledge: (CA) 3,6 (MA) 1,3

CCSS: 11-12.RST.2; 11-12.RST.3; 11-12.RST.9; N-Q.1; S-IC.2

NETS: 6a,d

Performance: 3.2-3.4

Unit (Section 3)

Learning Targets:

- Categorize standard media types and associated properties
- Categorize standard connector types based on network media
- Compare and contrast different wireless standards
- Categorize WAN technology types and properties
- Describe different Network topologies
- Given a scenario, troubleshoot common physical connectivity problems
- Compare and contrast different LAN technologies
- Identify components of wiring distribution

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration/video lesson and discussion:
 - Classroom lecture/demonstration/video lesson and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - Lab simulation activities from CompTIA Network+ N10-005 Network Simulator
 - Wireless Router activity – Part A
- Summative: Networking Media Types and Topologies test

Board Approved 8-3-15

Sample Assessment Questions:

- Match the topological terms to the topology diagram that most accurately represents the term. [Recall that the round objects represent routers and that the rectangles represent switches.]
- Given the functional descriptions of the requirements, match the WAN technology listed to the expressed requirement.

Instructional Resources/Tools:

- Teacher computer and SMART Board to:
 - present information
 - lead class discussions
- CompTIA Network+ N10-005 Network Simulator (Includes video lessons)
- Student lab computers with internet access for hands-on activities

Cross Curricular Connections:

- Math:
 - Number sense
 - Making inferences
- ELA:
 - Technical reading
 - Writing
 - Discussion

Depth of Knowledge (Section 5)

DOK: 3

Curriculum: Computer Technology I and II

Curricular Unit: Networking – Network Management

Instructional Unit: H. Monitor, analyze, troubleshoot, and manage a network

Standard Alignments (Section 2)

GLE/CLE: N/A

Knowledge: (CA) 3,6 (MA) 1,3

CCSS: 11-12.RST.2; 11-12.RST.3; 11-12.RST.9; 11-12.WHST.1; N-Q.1; S-IC.2

NETS: 6b-d

Performance: 3.2-3.4

Unit (Section 3)

Learning Targets:

- **Explain the purpose and function of various network appliances**
- Given a scenario, use appropriate hardware tools to troubleshoot connectivity issues
- Given a scenario, use appropriate software tools to troubleshoot connectivity issues
- Given a scenario, use the appropriate network monitoring resource to analyze traffic
- Describe the purpose of configuration management documentation
- Explain the different methods and rationales for network performance optimization

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration/video lesson and discussion:
 - Classroom lecture/demonstration/video lesson and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - Lab simulation activities from CompTIA Network+ N10-005 Network Simulator
 - Wireless Router activity – Part C
- Summative: Network Management test

Sample Assessment Questions:

- Match the documentation type to the description that best defines it.
- How could SNMP work to let the network administrator know if a file server's hard drive is nearing full capacity?

Board Approved 8-3-15

Instructional Resources/Tools:

- Teacher computer and SMART Board to:
 - present information
 - lead class discussions
- CompTIA Network+ N10-005 Network Simulator (Includes video lessons)
- Student lab computers with internet access for hands-on activities

Cross Curricular Connections:

- Math:
 - Number sense
 - Making inferences
- ELA:
 - Technical reading
 - Writing
 - Discussion

Depth of Knowledge (Section 5)

DOK: 3

Curriculum: Computer Technology I and II

Curricular Unit: Networking – Network Security

Instructional Unit: I. Identify various network security threats and implement security measures and practices to address them

Standard Alignments (Section 2)

GLE/CLE: N/A

Knowledge: (CA) 3,6 (MA) 1,3

CCSS: 11-12.RST.2; 11-12.RST.3; 11-12.RST.9; 11-12.WHST.1; N-Q.1; S-IC.2

NETS: 6b-d

Performance: 3.2-3.4

Unit (Section 3)

Learning Targets:

- Given a scenario, implement appropriate wireless security measures
- Explain the methods of network access security
- Explain methods of user authentication
- **Explain common threats, vulnerabilities, and mitigation techniques**
- Given a scenario, install and configure a basic firewall
- Categorize different types of network security appliances and methods

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration/video lesson and discussion:
 - Classroom lecture/demonstration/video lesson and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - Lab simulation activities from CompTIA Network+ N10-005 Network Simulator
 - Wireless Router activity – Part D
- Summative: Network Security test

Sample Assessment Questions:

- Summarize the steps required to create an authorized user who can log in to a specified network using an Active Directory system.

Board Approved 8-3-15

Instructional Resources/Tools:

- Teacher computer and SMART Board to;
 - present information
 - lead class discussions
- CompTIA Network+ N10-005 Network Simulator (Includes video lessons)
- Student lab computers with internet access for hands-on activities

Cross Curricular Connections:

- Math:
 - Number sense
 - Making inferences
- ELA:
 - Technical reading
 - Writing
 - Discussion

Depth of Knowledge (Section 5)

DOK: 3

Curriculum: Computer Technology I and II

Curricular Unit: Networking – Server Administration

Instructional Unit: J. Create, configure, and document a basic network using Linux

Standard Alignments (Section 2)

GLE/CLE: N/A

Knowledge: (CA) 3,6 (MA) 1,3

CCSS: 11-12.RST.2; 11-12.RST.3; 11-12.RST.9; 11-12.WHST.1; N-Q.1; S-IC.2

NETS: 6b-d

Performance: 3.2-3.4

Unit (Section 3)

Learning Targets:

- Install and update the Linux OS
- **Install and configure a file, web, and DNS server**
- Document the network and server installation

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration/video lesson and discussion:
 - Classroom lecture/demonstration/video lesson and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative: Linux and Server Types learning labs/activities
- Summative: Server Administration project with documentation

Sample Assessment Questions:

- What does DNS stand for?
- Explain how a server configuration utility assists in creating a server?
- Provide a practical example of a configuration utility and how it is used to help create the server.

Instructional Resources/Tools:

- Teacher computer and SMART Board to:
 - present information
 - lead class discussions

Board Approved 8-3-15

- Online documentation for:
 - configuration directions
 - how-to lessons
 - troubleshooting assistance
- Student lab computers with internet access for:
 - researching
 - learning activities
- Server lab machines running Linux
- Free Linux OS and server software
- Switches to connect mini-networks together

Cross Curricular Connections:

- Math:
 - Number sense
 - Making inferences
- ELA:
 - Technical reading
 - Writing
 - Discussion

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Web Design – HTML5 Text Tags

Instructional Unit: K. Construct effective web pages and demonstrate the proper use and coding of a basic HTML5 section, text, and listing tags

Standard Alignments (Section 2)

VACLE: PP.3.B (Level 4) Knowledge: (CA) 4 (FA) 1 (MA) 1 CCSS: 11-12.RST.3; 11-12.SL.5; 11-12.WHST.4; N.Q.1 NETS: 1a; 2b; 6a Performance: 1.4, 1.8, 2.7
--

Unit (Section 3)

Learning Targets:

- **Construct and demonstrate the proper use of basic HTML5 section tags and page title**
- Construct and demonstrate the proper use of basic HTML5 text tags
- Construct and demonstrate HTML5 ordered and unordered lists

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - HTML activity: Section tags – create an HTML document containing the section tags and title
 - HTML activity: Heading tags – create an HTML document containing examples of each heading tag (H1 through H6)
 - HTML activity: 4 paragraphs – create an HTML document containing 4 paragraphs of text
 - HTML activity: 4 paragraphs with quote – create an HTML document containing:
 - 4 paragraphs of text
 - a blockquote
 - examples of bold, italic, and underline text

- HTML activity: Listing – Top 10 Movies – create an HTML document containing:
 - an ordered list
 - unordered lists
 - alignment attributes
 - footer contents
- Summative:
 - HTML Quiz #1 – graded online quiz using:
 - Edmodo
 - Google
 - some other online tool
 - assessing students’ knowledge of HTML:
 - text tags
 - attributes
 - section contents
 - HTML activity: Internet history – assesses ability to create an HTML document with:
 - section tags
 - heading tags
 - paragraph tags
 - bolding
 - italicizing
 - underlining
 - blockquotes
 - alignment
 - listing tags
 - Software year: Term 1 final – create a multi-page website structured as a table, incorporating:
 - background colors and images
 - text and heading tags
 - internal and external links
 - lists
 - CSS
 - a favicon

Sample Assessment Questions:

- Create an HTML document in your text editor that contains all the HTML document sections. In addition, use the assignment name as the title. In the body section, write the words, “Hello World”.

Instructional Resources/Tools:

- Computer with text editor (currently using Notepad++)
- Adobe Reader for annotating assignments/activities
- Web browsers for testing
- Network/cloud storage area for submitting assignments/activities
- Teacher computer and SMART Board to demonstrate coding content and techniques

Cross Curricular Connections:

- ELA: Technical writing in a coding/programming language
- Math: Number sense

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Web Design – Internal and External Links

Instructional Unit: L. Creating effective web pages by constructing and coding HTML5 internal and external links and anchors

Standard Alignments (Section 2)

VACLE: PP.3.B (Level 4)
Knowledge: (CA) 4 (FA) 1 (MA) 1
CCSS: 11-12.RST.3; 11-12.SL.5; 11-12.WHST.4; N.Q.1
NETS: 1a; 2b; 6a
Performance: 1.4, 1.8, 2.7

Unit (Section 3)

Learning Targets:

- **Construct and create HTML5 internal links**
- Construct and create HTML5 external links

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - HTML activity: Link activity 1 – create an HTML document containing 5 external links
 - HTML activity: Link activity 2 – create a series of HTML documents containing internal links to each other
 - HTML activity: Link activity 3 – create a series of HTML documents containing internal links to each other
 - HTML activity: Link activity 4 – create a series of HTML documents containing internal links to each other
 - HTML activity: Link activity 5 – create a series of HTML documents containing internal links to each other

<ul style="list-style-type: none"> Summative: <ul style="list-style-type: none"> My Favorite Insect website project – Students will create a website about 3 of their favorite insects. This site will: <ul style="list-style-type: none"> contain 4 HTML pages with internal and external links assess the student’s ability to: <ul style="list-style-type: none"> create content code basic CSS formats edit/modify and insert images Software year: Term 1 final – Students will create a multi-page website structured as a table, incorporating: <ul style="list-style-type: none"> background colors and images text and heading tags internal and external links lists CSS a favicon
<p>Sample Assessment Questions:</p> <ul style="list-style-type: none"> Create an HTML document with 5 links to your favorite school-appropriate sites separated by 2 line breaks. Be sure to use the assignment name for the title and place your name and current date in the footer.
<p>Instructional Resources/Tools:</p> <ul style="list-style-type: none"> Computer with text editor (currently using Notepad++) Adobe Reader for annotating assignments/activities Web browsers for testing Network/cloud storage area for submitting assignments/activities Teacher computer and SMART Board to demonstrate coding content and techniques
<p>Cross Curricular Connections:</p> <ul style="list-style-type: none"> ELA: Technical writing in a coding/programming language Math: Number sense

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Web Design – CSS

Instructional Unit: M. Create and construct an effective web page that demonstrates the proper use and integration of internal, external, and in-line CSS3 coding

Standard Alignments (Section 2)

VACLE: PP.3.B (Level 4)
Knowledge: (CA) 4 (FA) 1 (MA) 1
CCSS: 11-12.RST.3; 11-12.SL.5; 11-12.WHST.4; N.Q.1
NETS: 1a; 3b; 6a
Performance: 1.4, 1.8, 2.7

Unit (Section 3)

Learning Targets:

- Create an effective web page that integrates in-line CSS3 format coding
- **Create an effective web page that integrates internal CSS3 format coding**
- Create an effective web page that integrates external CSS3 format coding

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - DHTML/CSS activity 1 – create a web page with internal CSS formatting from the teacher provided content and formatting directions
 - DHTML/CSS activity 2 – create a web page with external CSS formatting from the teacher provided content and formatting directions
 - DHTML/CSS activity 3 – create a web page with in-line CSS formatting from the teacher provided content and formatting directions

<ul style="list-style-type: none"> Summative: <ul style="list-style-type: none"> My Favorite Insect website project: Students will create a website about 3 of their favorite insects. This: <ul style="list-style-type: none"> site contains 4 HTML pages and assesses the student's ability to incorporate CSS format coding assessment also measures students' ability to: <ul style="list-style-type: none"> create content and resize modify insert images which is covered in other units Software year: Term 1 final – Students will create a multi-page website structured as a table, incorporating: <ul style="list-style-type: none"> background colors and images text and heading tags internal and external links lists CSS a favicon
<p>Sample Assessment Questions:</p> <ul style="list-style-type: none"> Create a web page using the attached content and incorporating internal CSS formatting code as directed.
<p>Instructional Resources/Tools:</p> <ul style="list-style-type: none"> Computer with text editor (currently using Notepad++) Adobe Reader for annotating assignments/activities Web browsers for testing Network/cloud storage area for submitting assignments/activities Teacher computer and SMART Board to demonstrate coding content and techniques
<p>Cross Curricular Connections:</p> <ul style="list-style-type: none"> ELA: Technical writing in a coding/programming language Math: Number sense

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Web Design – Design Template

Instructional Unit: N. Construct and create an HTML5 web page template

Standard Alignments (Section 2)

VACLE: PP.3.B (Level 4)
Knowledge: (CA) 4 (FA) 1 (MA) 1
CCSS: 11-12.RST.3; 11-12.SL.5; N.Q.1
NETS: 1a; 4b; 6d
Performance: 1.4, 1.8, 2.7

Unit (Section 3)

Learning Targets:

- **Create and code an effective web page that serves as a template for the entire web site**

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative: The Learning Place activity – Students will create a website:
 - template that contains all the code and elements that are common in every page of the site
 - in table format from that template that conforms to teacher-provided instructions using teacher-provided content and pictures
- Summative: Solar System project – Students will create a website about the solar system in which we live. This project has multiple phases and assesses the:
 - creation
 - integration
 - formatting of tables

Sample Assessment Questions:

- This project will be broken into 4 phases.
.....
- Phase 2 – Template creation: A template for your web pages and external stylesheet will be created.

Board Approved 8-3-15

Instructional Resources/Tools:

- Computer with text editor (currently using Notepad++)
- Adobe Reader for annotating assignments/activities
- Web browsers for testing
- Network/cloud storage area for submitting assignments/activities
- Teacher computer and SMART Board to demonstrate coding content and techniques

Cross Curricular Connections:

- ELA: Technical writing in a coding/programming language
- Math: Number sense

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Web Design – Images and Image Mapping

Instructional Unit: O. Create effective web pages by integrating edited images and constructing image maps

Standard Alignments (Section 2)

VACLE: PP.3.B (Level 4)
Knowledge: (FA) 1 (MA) 1 (CA) 4
CCSS: 11-12.SL.5; 11-12.RST.3; 11-12.RST.9; 11-12.WHST.6; N.Q.1
NETS: 2b; 3b; 6c
Performance: 1.4, 2.5

Unit (Section 3)

Learning Targets:

- **Create a web page that integrates images**
- Modify images in an image editing program like Adobe Photoshop
- Create and insert a favicon
- Create a web page that constructs and codes image maps

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - HTML activity – Image activity 1:
 - Download and save images
 - Insert these images into an HTML document
 - HTML activity – Image activity 2:
 - Download, save, and resize images
 - Insert these images into an HTML document
 - HTML activity: Bowfin activity – Students will create an HTML document given specific content and images. Students are given few directions, but are expected to create a close replica of the teacher provided example

- HTML activity: Image activity 3:
 - Students will modify 5 images in an image editing program utilizing the following features:
 - Resize
 - Auto tone
 - Auto contrast
 - Auto color
 - Insert these images into an HTML document
- HTML activity: Image activity 4 – Students will create an image map from a picture of the solar system that links each planet or sun to an external web link
- HTML activity: Image activity 5 – Students will create an image map from a picture of a motherboard linking specific components to external web links
- HTML activity: Favicon – Students will create a favicon image in an image editing program and insert it into a web page
- Summative:
 - My Favorite Insect website project: Students will create a website about 3 of their favorite insects. This:
 - site contains 4 HTML pages
 - assesses the student's ability to edit/modify and insert images
 - measures students' ability to:
 - create content
 - code basic CSS formats
 which is covered in other units
 - Image Mapping Website Project: Students will create an HTML document that contains an image-mapped picture of a tourist map that links to additional information about the specific object or destination being mapped
 - Software year – Term 1 final: Students will create a multi-page website structured as a table, incorporating:
 - background colors and images
 - text and heading tags
 - internal and external links
 - lists
 - CSS
 - a favicon

Sample Assessment Questions:

- Create a webpage using the assignment name as the title and save it into the ia1 folder. Insert the 5 images into the webpage.

Instructional Resources/Tools:

- Computer with text editor (currently using Notepad++)
- Adobe Reader for annotating assignments/activities
- Web browsers for testing
- Network/cloud storage area for submitting assignments/activities
- Teacher computer and SMART Board to demonstrate coding content and techniques

Cross Curricular Connections:

- ELA: Technical writing in a coding/programming language
- Math: Number sense

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Web Design – HTML5 Tables

Instructional Unit: P. Create, construct, and code HTML5 tables in a web page

Standard Alignments (Section 2)

VACLE: PP.3.B (Level 4)
Knowledge: (CA) 4 (FA) 1 (MA) 1
CCSS: 11-12.RST.3; 11-12.SL.5; 11-12.WHST.4; N.Q.1
NETS: 1a; 5c; 6a
Performance: 1.4, 1.8, 2.7

Unit (Section 3)

Learning Targets:

- Create a web page that integrates an HTML5 table
- **Create a web page that is organized as an HTML5 table**
- Create a web page that integrates an HTML5 table utilizing CSS coding in place of attributes

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - HTML activity – Table activity 1: Students will create a webpage that contains a table with teacher provided specifications
 - HTML activity – Table activity 2: Students will create a webpage that contains a table displaying scientific information
 - HTML activity –Table Shapes activities 1-3: Students will create a webpage that contains a table displaying a series of shapes and utilizing:
 - width
 - border
 - cellpadding
 - cellspacing
 - rowspan
 - colspan attributes

<ul style="list-style-type: none"> • HTML activity – CSS Table activity 1 – Students will create a webpage that contains a table and utilizes CSS code formats • The Learning Place activity: Students will create a website in table format that conforms to teacher-provided instructions using teacher-provided content and pictures • Summative: <ul style="list-style-type: none"> • Solar System project: Students will create a website about the solar system in which we live. This project has multiple phases and assesses the: <ul style="list-style-type: none"> • creation • integration • formatting of tables • Software Year – Term 1 final: Students will create a multi-page website structured as a table, incorporating: <ul style="list-style-type: none"> • background colors and images • text and heading tags • internal and external links • lists • CSS • a favicon
<p>Sample Assessment Questions:</p> <ul style="list-style-type: none"> • Take an old table activity that you have previously completed and apply a minimum of 12 CSS table properties to it. <ul style="list-style-type: none"> • At least 3 properties should be related to table borders. • At least 3 properties should be related to table margins. • At least 3 properties should be related to table alignment or spacing. • At least 3 properties should be related to table backgrounds.
<p>Instructional Resources/Tools:</p> <ul style="list-style-type: none"> • Computer with text editor (currently using Notepad++) • Adobe Reader for annotating assignments/activities • Web browsers for testing • Network/cloud storage area for submitting assignments/activities • Teacher computer and SMART Board to demonstrate coding content and techniques
<p>Cross Curricular Connections:</p> <ul style="list-style-type: none"> • ELA: Technical writing in a coding/programming language • Math: Number sense

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Web Design – HTML5 Forms

Instructional Unit: Q. Create HTML5 forms that can be integrated into a web page and linked to an e-mail address

Standard Alignments (Section 2)

VACLE: PP.3.B (Level 4)
Knowledge: (CA) 4 (FA) 1 (MA) 1
CCSS: 11-12.RST.3; N.Q.1
NETS: 1a; 4b; 6a
Performance: 1.4, 1.8, 2.7

Unit (Section 3)

Learning Targets:

- **Create a web page that integrates an HTML5 form**
- Link the HTML5 form to output to an e-mail address with subject line

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - HTML activity – Form activity 1 and 2: Students will create a web page that integrates a form that asks a series of questions and provides responses through the use of:
 - text fields
 - radio buttons
 - check boxes
 - a submit button
 - a reset buttonThe responses are formatted and sent to an e-mail address with a subject line included
- Summative: HTML Guestbook project – Students will create a webpage that acts as a guestbook to:
 - fill out a survey
 - request additional information

Sample Assessment Questions:

- Create a form using the following questions. Make sure when you submit the information that it is sent to my e-mail address (james.farthing@jcschools.us) and use the subject line 'Form Activity 1'.

Instructional Resources/Tools:

- Computer with text editor (currently using Notepad++)
- Adobe Reader for annotating assignments/activities
- Web browsers for testing
- Network/cloud storage area for submitting assignments/activities
- Teacher computer and SMART Board to demonstrate coding content and techniques

Cross Curricular Connections:

- ELA: Technical writing in a coding/programming language
- Math: Number sense

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Web Design – JavaScript

Instructional Unit: R. Create, develop, code, and integrate JavaScript into an effective web page

Standard Alignments (Section 2)

VACLE: PP.3.B (Level 4)

Knowledge: (CA) 4 (FA) 1 (MA) 1

CCSS: 11-12.SL.1; 11-12.L.4; 11-12.RST.3; 11-12.RST.4; 11-12.WHST.4; N.Q.1

NETS: 1a; 4b; 6d

Performance: 1.4, 1.8, 2.7

Unit (Section 3)

Learning Targets:

- Create, reference, and code JavaScript date and time objects
- Create, reference, and code JavaScript event handlers
- Create, reference, and code JavaScript prompts
- **Create, reference, code, and assign values to JavaScript variables**
- Create, reference, and code JavaScript object properties
- Create, reference, and code JavaScript functions
- Create, reference, and code JavaScript math operations
- Create, reference, and code a JavaScript that can retrieve object values
- Create, reference, and code JavaScript random number generators
- Create, reference, and code JavaScript arrays
- Create, reference, and code a JavaScript that adds action to web elements (i.e., image flips)

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Board Approved 8-3-15

Assessments/Evaluations:

- Formative:
 - JavaScript Primer #1: Placing Text on a Webpage
 - JavaScript Primer #2: Error Messages
 - JavaScript Primer #3: Dates and Times
 - JavaScript Primer #4: Event Handlers
 - JavaScript Review Activity #1
 - JavaScript Primer #5: More Event Handlers
 - JavaScript Primer #6: Prompts and Variables
 - JavaScript Primer #7: JavaScript Properties
 - JavaScript Primer #8: Hierarchy of Objects
 - JavaScript Review Activity #2
 - JavaScript Primer #9: Creating a Function
 - JavaScript Primer #10: After-Effect Commands (onUnLoad and onMouseOut)
 - JavaScript Primer #11: Opening New Windows
 - JavaScript Primer #12: Opening a Window with a Function
 - JavaScript Review Activity #3
 - JavaScript Primer #13: 'Confirm' Method (Intro to IF and ELSE)
 - JavaScript Review Activity #4
 - JavaScript Primer #14: Math Variables
 - JavaScript Review Activity #5
 - JavaScript Primer #15: Image Flip Using OnMouseOver
 - JavaScript Primer #16: Image Flip With a Function
 - JavaScript Review Activity #6
 - JavaScript Primer #17: Calling Functions With Forms
 - JavaScript Primer #18: Form Fields and the Value Property
 - JavaScript Review Activity #7
 - JavaScript Primer #19: Passing Information to a Function
 - JavaScript Primer #20: Random Number Generators
 - JavaScript Review Activity #8
 - JavaScript Primer #21: Introduction to IF and Branching
 - JavaScript Primer #22: IF/ELSE Statements
 - JavaScript Primer #23: Producing Random Statements and Images
 - JavaScript Primer #24: 'For' Loops
 - JavaScript Primer #25: 'While' Loops
 - JavaScript Review Activity #9
 - JavaScript Primer #26: Functions from a Function
 - JavaScript Primer #27: JavaScript Slide Shows
 - JavaScript Primer #29: Form Field Validation
- Summative – Projects:
 - 3 Formulas JavaScript
 - Magic 8 Ball
 - Design Your Own Game/Utility

Sample Assessment Questions:

Directions: Using HTML and JavaScript, create an online Magic 8 Ball using the following criteria as a guide and reference.

- The program must, in some way, ask a question and give the end user an opportunity to respond. 20 points
- The program must then give one of the following responses. The response must be given in random fashion. For full points, the responses must be stored in an array and the game reset after each play without reloading the page. 20 points

Instructional Resources/Tools:

- Teacher computer and SMART Board to demonstrate coding content and techniques
- Computer with text editor (currently using Notepad++)
- Adobe Reader for annotating assignments/activities
- Web browsers for testing
- Network/cloud storage area for submitting assignments/activities
- HTMLgoodies.com website as a tutorial
- Teacher computer and SMART Board to demonstrate coding content and techniques

Cross Curricular Connections:

- ELA:
 - Technical reading
 - Writing
 - Discussion
- Math: Number sense

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Computer Programming – Programming History

Instructional Unit: S. Analyze the history of computer programming

Standard Alignments (Section 2)

VACLE: HC.1.B (Level 3)
Knowledge: (CA) 3,6 (FA) 5
CCSS: 11-12.L.4; 11-12.RST.2
NETS: 6d
Performance: 1.4, 2.4, 3.4

Unit (Section 3)

Learning Targets:

- Demonstrate knowledge of the history of computer programming
- Organize and classify different types of computer programming
- Demonstrate knowledge of the history of computer programming languages
- Compare and contrast computer programming languages

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - Simply Java Tutorial 1 Multiple Choice Review Questions and Exercises
 - Online Quizzes to measure knowledge retention and to review important topics
- Summative: Simply Java Tutorial 1 – 3 test

Sample Assessment Questions:

- _____ is a packaging scheme for creating meaningful software units.
 - a. Property packaging
 - b. Object technology
 - c. Behavior packaging
 - d. Procedural technology

Instructional Resources/Tools:

- Text: *Simply Java Programming: An Application-Driven Tutorial Approach*
- Teacher computer and SMART Board to:
 - present information
 - lead class discussions

Cross Curricular Connections:

- ELA:
 - Technical reading
 - Writing

Depth of Knowledge (Section 5)

DOK: 2

Curriculum: Computer Technology I and II

Curricular Unit: Computer Programming – Command Line Programs

Instructional Unit: T. Design, create, compile, and run a Java program that runs in the command line environment

Standard Alignments (Section 2)

VACLE: PP.3.C (Level 4)
Knowledge: (CA) 4 (FA) 1 (MA) 1
CCSS: 11-12.SL.2; 11-12.RST.3; N.Q.1; F-BF.3
NETS: 1a; 3b,c
Performance: 1.4, 1.8, 2.7

Unit (Section 3)

Learning Targets:

- Design a Java program using pseudocode and program control methods
- Import appropriate Java Libraries for use in a specific Java program
- **Initialize, configure, call, and convert Java variables**
- Perform math operations in a Java program
- Create, configure, and call a method in a Java program

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity
- The teacher will demonstrate examples of content specific to the learning targets

Assessments/Evaluations:

- Formative:
 - Java Assignment #1: Name.java
 - Java Assignment #1a: Name1a.java
 - Java Assignment #2: Address.java
 - Java Assignment #2a: Address2a.java
 - Java Assignment #3: Tree.java
 - Java Assignment #3a: Tree3a.java
 - Java Assignment #4: Initial.java
 - Java Assignment #5: Room.java
 - Java Assignment #6: Carpet.java
 - Java Assignment #7: Time.java

Board Approved 8-3-15

<ul style="list-style-type: none"> • Java Assignment #8: Initials.java • Java Assignment #9: Fees.java • Java Assignment #10: Payroll.java • Java Assignment #11: Dollars.java • Java Assignment #12: Interest.java • Java Assignment #13: Salary.java • Java Assignment #14: Numbers.java • Java Assignment #14a: Numbers14a.java • Java Assignment #15: Eggs.java • Java Assignment #15a: Tomato.java • Java Assignment #16: Monogram.java • Java Assignment #16a: Circle.java • Java Assignment #17: Exponent.java • Java Assignment #17a: Average.java • Java Assignment #18: Cube.java • Java Assignment #18a: SpecialRelativity.java • Java Assignment #19: Divide.java • Java Assignment #19a: Cylinder.java • Summative: <ul style="list-style-type: none"> • Java Command Line project: Fish Calculator • Java Term 3 Programming Practical final: Temperature Conversion program
<p>Sample Assessment Questions:</p> <ul style="list-style-type: none"> • Write, compile, and test a program that displays the following pattern on the screen: <pre style="text-align: center;"> X XXX XXXXX X </pre>
<p>Instructional Resources/Tools:</p> <ul style="list-style-type: none"> • Computer with text editor (currently using Notepad++) • Adobe Reader for annotating assignments/activities • Java JRE and JDK • Network/cloud storage area for submitting assignments/activities • Teacher computer and SMART Board to: <ul style="list-style-type: none"> • present information • lead class discussions
<p>Cross Curricular Connections:</p> <ul style="list-style-type: none"> • ELA: <ul style="list-style-type: none"> • Technical reading • Writing • Discussion • Math: <ul style="list-style-type: none"> • Number sense • Building new functions

Depth of Knowledge (Section 5)

DOK: 4

Curriculum: Computer Technology I and II

Curricular Unit: Computer Programming – GUI Programs

Instructional Unit: U. Design, create, compile, and run a Java program that runs in a Graphical User Interface (GUI) environment

Standard Alignments (Section 2)

VACLE: PP.3.C (Level 4)
Knowledge: (CA) 4 (FA) 1 (MA) 1
CCSS: 11-12.SL.2; 11-12.RST.3; N.Q.1; F-BF.3
NETS: 1a; 3b,c
Performance: 1.4, 1.8, 2.7

Unit (Section 3)

Learning Targets:

- Design a Java program using pseudocode and program control methods
- Import appropriate Java Libraries for use in a specific Java program
- Initialize, configure, call, and convert Java variables
- **Initialize, configure, and call GUI objects**
- Perform math operations in a Java program
- Perform logical decisions using logical statements in a Java program
- Perform logical decisions using repetition statements in a Java program
- Perform logical decisions using switch statements in a Java program
- Create, configure, and call an event handler in a Java Program
- Create, configure, and call a method in a Java program
- Initialize, configure, and use a random number generator in Java
- Store and call information using an array in a Java program

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/demonstration and discussion:
 - Classroom lecture/demonstration and discussion – students will participate effectively in a range of collaborative discussions
 - Student note taking – students will summarize and organize information in a note-taking activity

Board Approved 8-3-15

<ul style="list-style-type: none"> • Student tutorial activity – students will read the text and follow along with the tutorial activity to reinforce the learning objectives • The teacher will demonstrate examples of content specific to the learning targets
<p>Assessments/Evaluations:</p> <ul style="list-style-type: none"> • Formative – Multiple choice questions and exercises for: <ul style="list-style-type: none"> • Tutorial 1: Introducing Computers, the Internet and Java Programming • Tutorial 2: Introduction to Graphical User Interface Programming • Tutorial 3: Introducing JTextFields and JButtons • Tutorial 4: Introducing Programming • Tutorial 5: Introducing Variables, Memory Concepts, Arithmetic and Keyboard Events • Tutorial 6: Introducing Algorithms, Pseudocode and Program Control • Tutorial 7: Introducing JCheckBoxes, Message Dialogs and Logical Operators • Tutorial 8: Introducing the while Repetition Statement and JTextAreas • Tutorial 9: Introducing the do...while Repetition Statement • Tutorial 10: Introducing the for Repetition Statement • Tutorial 11: Introducing the switch Multiple-Selection Statement, Date and DateFormat • Tutorial 12: Introducing Methods • Tutorial 13: Introduction to Event Handling • Tutorial 14: Introducing Scope and Conversion of Primitive Types • Tutorial 15: Introducing Random Number Generation and the JPanel • Tutorial 16: Introducing One-Dimensional Arrays and JComboBoxes • Tutorial 17: Introducing Two-Dimensional Arrays and JRadioButtons • Summative – Projects: <ul style="list-style-type: none"> • Magic 8 Ball • Java final
<p>Sample Assessment Questions:</p> <ul style="list-style-type: none"> • Overview: One of the most interesting parts of the computer programming industry is undoubtedly game programming, which accounts for billions of dollars in consumer spending each year. In this activity, you will work individually to create a Java game or utility program. <i>Directions: Individually, design and create a game using Java. While your game or utility concept may be either a totally new type of game or an old standard, your objective is to design, build, test, and implement this game or utility. This will be accomplished in 4 stages.</i> <p>Stage 1 – Design Before you code a single line, you are to design the game/utility and all its components on paper. This means everything!!! All rules, game flow, actions, and outcomes must be mapped out and all literature related to the game must be created before any coding starts, period. All this work is to be presented to me, the instructor, before moving on to stage 2.</p> <p>Stage 2 – Building and Coding Build and code your game/utility. Get the code working in stages adding additional capabilities to the program after you get the basic game/utility working.</p>

Stage 3 – Test and Fix

Thoroughly test and fix your game/utility so that it works seamlessly.

Stage 4 –Presentation Day

You will present your game/utility on your last day of attendance for grading.

Instructional Resources/Tools:

- Computer with text editor (currently using Notepad++)
- Adobe Reader for annotating assignments/activities
- Java JRE and JDK
- Network/cloud storage area for submitting assignments/activities
- Teacher computer and SMART Board to:
 - present information
 - lead class discussions
- Text: *Simply Java Programming, 2004*; Prentice Hall; ISBN#0-13-142648-6

Cross Curricular Connections:

- ELA:
 - Technical reading
 - Writing
 - Discussion
- Math:
 - Number sense
 - Building new functions

Depth of Knowledge (Section 5)

DOK: 4