### UNIT TITLE: Intro to Computer Hardware

#### ENDURING UNDERSTANDINGS

1. Students will be able to assemble a full functioning computer
2. Students will be able to disassemble a full functioning computer
3. Students will be able to identify and explain the function of computer components

#### TECHNOLOGY STANDARDS:

<table>
<thead>
<tr>
<th>NYSED CTE INTERMEDIATE STANDARD 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>- assemble a computer system including keyboard, central processing unit and disc drives, mouse, modem, printer, and monitor</td>
</tr>
<tr>
<td>- understand basic computer architecture and describe the function of computer subsystems and peripheral devices</td>
</tr>
</tbody>
</table>

#### LITERACY STANDARDS:

<table>
<thead>
<tr>
<th>CCSS.ELA-Literacy.RST.11-12.3</th>
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<td>Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</td>
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#### ESSENTIAL QUESTION(S):

1— What is computer hardware?
2— How can computer components be assembled to create a functioning device?
3— Explain the advantages of being a computer technician.

#### CONTENT:
1— Introduction to Computer Hardware
   - What are computer hardware components?
   - How do components work together to create a functioning system?
2__ Computer Disassemble
   - Take apart a computer.
   - Identify each computer component
3__ Computer Assembly
   - Reassemble a computer
   - Identify each computer component
4__ Research Computer Components
   - Design a personal computer

**SKILLS / UNDERSTANDINGS:**

1__ Skill_ Use tools to assemble a computer
2__ Skill_ Test a computer for operating purposes (does it work after assembly)
2__ Understanding_ Identifying each computer component and knowing their individual purpose
   in the system

**VOCABULARY:**

1__ Motherboard
2__ Chassis
3__ RAM
4__ CPU
5__ GPU
6__ SSD
7__ HDD
8__ Heat Sink
9__ Media Drives

**ASSESSMENT / EVIDENCE**

1__ Weekly Journal of Computer Components used
2__ Weekly Quiz of Vocabulary
3__ Computer Hardware Checks (Are components where they are supposed to be?)

**ACTIVITIES / LEARNING OPPORTUNITIES:**
1— Computer Technician Experience  
2— See Content Section for activities

**RESOURCES:**

1. Online Computer Diagrams (Dell.com)  
2. Computer Instruction Manuals  
3. Used Computer Desktops (donated by school)

**TECHNOLOGY INTEGRATION**

1. Course is based on Technology Integration through computer hardware and software

**UNIT TITLE:** Intro to HTML and CSS

**ENDURING UNDERSTANDINGS**

4. Students will be able to learn the building blocks of web development with HTML and CSS.
5. Students will be able to create their own website.
6. Students will be able to document the history of HTML through text based evidence.

**SOCIAL STUDIES STANDARDS:**  
**LITERACY STANDARDS:**
NYSED CTE INTERMEDIATE STANDARD
5  
• develop an understanding of computer programming and attain some facility in writing computer programs  
  • understand basic computer architecture and describe the function of computer subsystems and peripheral devices  
  • use a computer system to monitor and control external events and/or systems  
  • control computerized devices and systems through programming  
  • model and simulate the design of a complex environment by giving direct commands

ESSENTIAL QUESTION(S):

1— What is the HTML coding language?  
2__ How can the HTML coding language be used to create useful programs?  
3__ Explain the advantages and disadvantages of HTML compared to other codes.

CONTENT:

1__ Introduction to HTML  
   - HTML Basics  
   - Building your own Website  
2__ HTML STRUCTURE: TABLES, DIVS, AND SPANS  
   - HTML Basics III  
3__ Introduction to CSS  
   - CSS An Overview  
   - Design a button for your website  
4__ CSS Classes and IDS  
   - CSS Selectors  
   - Sorting your friends  
5__ CSS Element Positioning  
   - CSS Positioning  
   - Build your resume

CCSS.ELA-Literacy.RST.11-12.3  
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</tr>
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<td>2__ Understanding_ Learn HTML in order to create a personalized webpage</td>
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<td>VOCABULARY:</td>
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<td>1__ CSS</td>
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<td>2__ Element Positioning</td>
</tr>
<tr>
<td>3__ Multiple Selectors</td>
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</tr>
<tr>
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UNIT TITLE: Intro to Python

ENDURING UNDERSTANDINGS

7. Students will be able to learn to program in Python.
8. Students will be able to implement this powerful language into sites like YouTube and Dropbox.
9. Students will be able to document the history of Python through text based evidence.

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ESSENTIAL QUESTION(S):
1— What is the Python coding language?
2__ How can the Python coding language be used to create useful programs?
3__ Explain the advantages and disadvantages of Python compared to other codes.

CONTENT:

1__ Introduction to Python
   - Python Syntax
   - Creating a calculator
2__ Strings and Console Output
   - Introduction to Strings and Console Output
   - Date and Time
3__ Conditionals and Control Flow
   - Introduction to Conditionals and Control Flow
   - Pyglatin Exercise
4__ Functions
   - Introduction to Functions
   - “Taking a Vacation” Exercise
5__ Lists and Dictionaries Tools
   - Python Lists and Dictionaries
6__ Lists and Functions
   - Using Lists with Functions
   - Using Lists with Functions and Conditions
7__ Loops
   - Introduction to Loops
8__ Exam Statistics
   - Creating a program to calculate test scores
9__ Advanced Python Topics
   - Using Advanced Topics in Python
   - Introduction to Bitwise Operators
10_ Introduction to Classes
    - Object Oriented Programming
11_ File Input and Output
    - Using File Input and Output

SKILLS / UNDERSTANDINGS:

1— Skill_ Use Python Control Flow and Conditionals
2__ Skill_ Use other Python features such as Functions, Lists, and Loops
3__ Understanding_ Learn Python in order to write data to a file in real-time
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UNIT TITLE: Intro to JAVA

ENDURING UNDERSTANDINGS

10. Students will be able to learn how to make websites interactive.
11. Students will be able to how to build browser based games.
12. Students will be able to document the history of JavaScript through text based evidence.
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  • develop an understanding of computer programming and attain some facility in writing computer programs  
  • understand basic computer architecture and describe the function of computer subsystems and peripheral devices  
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| ESSENTIAL QUESTION(S): | CCSS.ELA-Literacy.RST.11-12.9  
  Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. |
1— What is the JAVA coding language?  
2— How can the JAVA coding language be used to create useful programs?  
3— Explain the advantages and disadvantages of JAVA compared to other codes. |
| CONTENT: | |
|
1__ Introduction to JavaScript
   - Getting started with Programming
2__ Functions
   - Introduction to Java functions in JS
   - Create a JS program
3__ ‘For’ Loops in JavaScript
   - Introduction to ‘For’ Loops in JS
   - Search text for your name

4__ ‘While’ Loops in JavaScript
   - Introduction to ‘While’ Loops in JavaScript
   - Implement ‘While’ loops in program
5__ Control Flow
   - How to use Control Flow in JavaScript
6__ Data Structures in JavaScript
   - Array and Objects
   - Contact List
7__ Objects 1
   - Introduction to Objects 1
   - Building an address book
8__ Objects 2
   - Introduction to Objects 2
   - Building a cash register

SKILLS / UNDERSTANDINGS:
1— Skill – Creating websites using JavaScript
2__ Skill _ Creating Loops, Arrays, and Functions using JavaScript
3__ Understanding _Learning JavaScript to create complex operations using programming language

VOCABULARY:

1__ FUNCTIONS
2__ ‘FOR’ LOOPS
3__ ‘WHILE’ LOOPS
4__ JS CONTROL FLOW
5__ DATA STRUCTURES
6__ ARRAYS
### ASSESSMENT / EVIDENCE

1. Use Code Academy Software to track progress
2. Weekly Quizzes on coding technique and vocabulary
3. Non-Fiction Evidence Based Article reading and summaries for CCLS

### ACTIVITIES / LEARNING OPPORTUNITIES:

1. See Content Section
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### RESOURCES:

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### TECHNOLOGY INTEGRATION

1. Course is based on Technology Integration through computer hardware and software

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**UNIT TITLE:** Intro to Ruby

**ENDURING UNDERSTANDINGS**

13. Students will be able to learn to program in Ruby.
14. Students will be able to use a more flexible language used to create sites like Codecademy.
15. Students will be able to document the history of Ruby through text based evidence.

**SOCIAL STUDIES STANDARDS:**

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5
• develop an understanding of computer programming and attain some facility in writing computer programs
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ESSENTIAL QUESTION(S):
1— What is the Ruby coding language?
2__ How can the Ruby coding language be used to create useful programs?
3__ Explain the advantages and disadvantages of Ruby compared to other codes.

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<tr>
<td>1— Skill_ Learn Control Flow, Loops, and Arrays to create algorithms</td>
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<td>2— Understanding _ How Ruby concepts can help execute object based programming abilities</td>
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Reviewed Fall, 2020