Exploring Computer Science/ Multimedia
Curriculum Mapping
2019-2020
Christina Strid

Unit: *Unit 1 – Human Computer Interaction*	**Time:** *August 2019*

Standards Taught

- *FT 6.1 –Demonstrate advanced search techniques within a search engines*
- *FT 6.2 – Analyze different search engines*
- *FT 6.3 – Evaluate different Internet browsers*
- *ET.RL.1 Students use technology to locate, organize, evaluate and analyze information.*
- *ET.RL.2 Students determine the reliability and relevancy of information.*
- ET.OC.1 Students interpret the history and progression of technology.
- ET.OC.2 Students analyze the parts of a technological system.
- ET.OC.3 Students demonstrate skills in utilizing technological systems.

Differentiation/Assessment:	**Classroom Management and Environment:**	**What will the students be doing?**
Students who needed the extra help received guided notes, extra individual practice, modified questions and shortened tests.	*The classroom is set up using nine tables. The students move into different groups to practice speech and listening skills. Overall the environment is structured and has rules and procedures in place.*	*The students will be learning about the concepts of computing, functions of the computer, discuss search engines, discuss implications of data on society, introduce the concept of a computer program, and discuss what is intelligence.*
Prior Knowledge Needed	**Vocabulary**	**Assessments**
Students have a foundation in computer science that they will upon in this course.	*Computing* *Search engines* *Data* *Modeling and design* *Computer program*	*Students will answer questions in class, participate in discussions, daily assignments and a unit test.*
Reflection: *This is a unit that explores computing and how people and computers interact. This is a foundational chapter to this unit.*	**Essential Questions:** • *How do humans and computers interact?* • *How do evaluate searches and web sites?* • *What does it mean for a computer to "learn"?*	
Relevance	Students need to understand what computing is, the function of computer parts, the implication of data on society and introduce the concept of a computer program.	

<table>
<tr><td colspan="2">Unit: Unit 2 – Problem Solving</td><td>Time: September-October 2019</td></tr>
<tr><td colspan="3">Standards Taught</td></tr>
<tr><td colspan="3">FT 9.2 -Analyze the effect of technology on relationships and communication
FT 9.4 -Follow ethical and legal guidelines in gathering and using digital information and applications
FT 9.5 Effectively decipher reliable information on the web
ET.CT.2 Students demonstrate the design process through problem solving.
ET.CT.3 Students evaluate and select technology tools based on the specific tasks.</td></tr>
<tr><td>Differentiation/Assessment:</td><td>Classroom Management and Environment:</td><td>What will the students be doing?</td></tr>
<tr><td>Students who needed the extra help received guided notes, extra individual practice, modified questions and shortened tests.</td><td>The classroom is set up using nine tables. The students move into different groups to practice speech and listening skills. Overall the environment is structured and has rules and procedures in place.</td><td>The students will be introduced to data collection and the problem solving steps, apply the problem solving steps, count in binary, searches that are linear/binary, sorting and minimal spanning trees.</td></tr>
<tr><td>Prior Knowledge Needed</td><td>Vocabulary</td><td>Assessments</td></tr>
<tr><td>Students have a foundation in computer science that they will build upon in this course.</td><td>Data collection
Problem solving
Binary
Sorting algorithms
Minimal spanning trees</td><td>Students will answer questions in class, participate in discussions, daily assignments and a unit test.</td></tr>
<tr><td>Reflection:
This unit is important to understanding the problem solving process which is important in all area of study.</td><td colspan="2">Essential Questions:
Why is data collection important?
How do you use the problem-solving process?
Why is binary important to computer science?
Why is sorting important in computer science?</td></tr>
<tr><td>Relevance</td><td colspan="2">Students will need to be able to solve problems in all of their coursework and it is a life skill.</td></tr>
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Unit: *Unit 3 –Web Design*	**Time:** *November-December 2019*

Standards Taught

- *WD 2.1 Demonstrate knowledge required to create a web page*
- *WD 2. Demonstrate creation of web pages*
- *WD 2.2 Demonstrate appropriate file structure and naming*
- *WD 2.3 Create web pages with appropriate HTML structure and standards that can be validated using World Wide Web Consortium validator (W3C)*
- *WD 2.4 Demonstrate the use of elements and attributes*
- *WD 2.5 Incorporate meta tags for page documentation and search engine optimization*
- *WD 2.6 Implement advanced elements to create web pages*
- *WD 3. Format web pages using Cascading Style Sheets (CSS).*
- *WD 3.1 Apply essential aspects of the CSS*
- *WD 3.2 Apply CSS to a website*
- *WD 3.3 Use selectors in a CSS*
- *WD 3.4 Format page layout with advanced CSS*
- *WD 4. Plan, design, implement, and maintain website(s).*
- *WD 4.1 Analyze project requirements*
- *WD 4.2 Plan site design and page layout*
- *WD 4.3 Create content for website*
- *WD 4.4 Upload and maintain a site.*
- *WD 5. Explore advanced web concepts.*
- *WD 5.1 Demonstrate the use of scripting and other interactive tools*
- *WD 5.2 Explore other web technologies*

Differentiation/Assessment:	**Classroom Management and Environment:**	**What will the students be doing?**
Students who needed the extra help received guided notes, extra individual practice, modified questions and shortened tests.	*The classroom is set up using nine tables. The students move into different groups to practice speech and listening skills. Overall the environment is structured and has rules and procedures in place.*	*The students will be exploring the issues of social responsibility in web use, influence of the web on society, creating storyboards, learning basic html, formatting, inserting images, css, making a web design project, using layouts and designing their own web page.*
Prior Knowledge Needed	**Vocabulary**	**Assessments**
Students have a foundation in computer science that they will build upon in this course.	*Storyboard* *Html* *Formatting* *Hyperlinks* *Page layouts*	*Students will answer questions in class, participate in discussions, daily assignments and a unit test.*
Reflection:	**Essential Questions:**	

We used several sources to learn html then used Expression to be able to edit a web page quickly.	• *Why is it important to be socially responsible when using the web and designing web pages?* • *What are the best designs for a web site?*
Relevance	The web is an important portion of all our lives. We all need to be aware of how to be a good digital citizen.

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<tr><td colspan="2">Unit: Unit 4 –Introduction to Programming</td><td>Time: January-February 2020</td></tr>
<tr><td colspan="3">Standards Taught</td></tr>
<tr><td colspan="3">

CP 1.1 Demonstrate knowledge of external and internal computer hardware.
CP 1.2 Demonstrate knowledge of software concepts.
CP 1.3 Demonstrate the ability to compile, debug, and execute programs.
CP 2.1 Demonstrate the ability to use a standard programming style.
CP 2.2 Recognize software development processes
CP 2.3 Identify the syntactical components of a program
CP 3.1 Demonstrate the ability to use basic elements of a specific language
CP 3.2 Employ basic arithmetic expressions in programs.
CP 3.3 Demonstrate the ability to use data types in programs
CP 3.4 Incorporate functions/methods.
CP 4.1 Demonstrate the ability to use relational and logical operators in programs.
CP 4.2 Investigate conditional statements
CP 4.3 Implement loops in programs.
CP 5.1 Identify personal interests and abilities related to Computer Programming/Software Engineering careers.
CP 5.2 Investigate career opportunities, trends, and requirements related to computer programming/software engineering careers.
CP 5.3 Demonstrate job skills for programming industries.

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<tr><td>Students who needed the extra help received guided notes, extra individual practice, modified questions and shortened tests.</td><td>The classroom is set up using nine tables. The students move into different groups to practice speech and listening skills. Overall the environment is structured and has rules and procedures in place.</td><td>The students will be programming with Scratch to create dialogs, movement, games, broadcasting, use variables, conditionals, Boolean operators and create a final project.</td></tr>
<tr><td>Prior Knowledge Needed</td><td>Vocabulary</td><td>Assessments</td></tr>
<tr><td>Students have a foundation in computer science that they will build upon in this course.</td><td>Sprite
Broadcasting
Variable
Conditional
Boolear operators
abstraction</td><td>Students will answer questions in class, participate in discussions, daily assignments and a unit test.</td></tr>
<tr><td>Reflection:
The students began to use Scratch to learn programming skills and further develop their problem solving skills.</td><td colspan="2">Essential Questions:
Why are programming skills important in Computer Science?
How do we use our problem solving skills in programming?
What is abstraction in computer science?</td></tr>
<tr><td>Relevance</td><td colspan="2">The students develop their problem solving skills to create programs.</td></tr>
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<tr><td colspan="2">Unit: Unit 5 –Computing and Data Analysis</td><td>Time: March 2020</td></tr>
<tr><td colspan="3">Standards Taught</td></tr>
<tr><td colspan="3">ET.RL.1 Students use technology to locate, organize, evaluate and analyze information.
ET.RL.2 Students determine the reliability and relevancy of information.
ET.DC.1 Students analyze the safe, ethical, legal, and societal issues related to technology.
ET.CI.1 Students use technology to generate ideas and promote creativity.
ET.CC.1 Students use technology to communicate with others.
ET.CC.2 Students use technology to collaborate for an identified purpose</td></tr>
<tr><td>Differentiation/Assessment:</td><td>Classroom Management and Environment:</td><td>What will the students be doing?</td></tr>
<tr><td>Students who needed the extra help received guided notes, extra individual practice, modified questions and shortened tests.</td><td>The classroom is set up using nine tables. The students move into different groups to practice speech and listening skills. Overall the environment is structured and has rules and procedures in place.</td><td>Students will be review data, creating maps with data, discussing trends, analyzing statistics, queries and making a final analysis of their information.</td></tr>
<tr><td>Prior Knowledge Needed</td><td>Vocabulary</td><td>Assessments</td></tr>
<tr><td>Students have a foundation in computer science that they will build upon in this course.</td><td>Data
Plots
Mean
Median
Mode
Minimum
Maximum
Subsets
Filters
queries</td><td>Students will answer questions in class, participate in discussions, daily assignments and a unit test.</td></tr>
<tr><td>Reflection:
The students did a modified unit this year due to online learning but have a good foundation for the future.</td><td colspan="2">Essential Questions:
Why is it important to analyze data?
What tools can we use to look at data?
How do you make conclusions from data?</td></tr>
<tr><td>Relevance</td><td colspan="2">Our world collects data from us constantly. It is important to be able to make informed decisions with this information.</td></tr>
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Unit: *Unit 6 –Robotics*	**Time:** *April - May 2020*

Standards Taught

- *FT 9.2 -Analyze the effect of technology on relationships and communication*
- *FT 9.4 -Follow ethical and legal guidelines in gathering and using digital information and applications*
- *FT 9.5 Effectively decipher reliable information on the web*
- CP 2.1 Demonstrate the ability to use a standard programming style.
- CP 2.2 Recognize software development processes
- CP 2.3 Identify the syntactical components of a program
- CP 3.1 Demonstrate the ability to use basic elements of a specific language
- CP 3.2 Employ basic arithmetic expressions in programs.
- CP 3.3 Demonstrate the ability to use data types in programs
- CP 3.4 Incorporate functions/methods.
- CP 4.1 Demonstrate the ability to use relational and logical operators in programs.
- CP 4.2 Investigate conditional statements
- CP 4.3 Implement loops in programs.
- CP 5.1 Identify personal interests and abilities related to Computer Programming/Software Engineering careers.
- CP 5.2 Investigate career opportunities, trends, and requirements related to computer programming/software engineering careers.
- CP 5.3 Demonstrate job skills for programming industries.
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Differentiation/Assessment:	**Classroom Management and Environment:**	**What will the students be doing?**
Students who needed the extra help received guided notes, extra individual practice, modified questions and shortened tests.	*The classroom is set up using nine tables. The students move into different groups to practice speech and listening skills. Overall the environment is structured and has rules and procedures in place.*	*The students will be identifying what is a robot, learning the features of the Edison Robot, Edware, robot movement, sensing and building programs with their robot.*
Prior Knowledge Needed	**Vocabulary**	**Assessments**
Students have a foundation in computer science that they will build upon in this course.	*Robot* *Algorithms* *Programming environment*	*Students will answer questions in class, participate in discussions, daily assignments and a unit test.*
Reflection: *The students did a modified unit this year due to online learning but have a good foundation in digital citizenship.*	**Essential Questions:** • *How do robots help us in our lives?* • *How do we use problem solving to create programs to use our robots?*	

Relevance	*Robotics is an area that is constantly expanding. It is important for students to understand their importance in our lives.*