

Foundations of Interactive Design Curriculum Map – Elliott Neumeister, Murphey Middle School, 2023-08-07

Middle School Computer Science courses are 9 weeks long per the curriculum, but Murphey uses an A Day – B Day system.   
As a result, my estimated times assume a total course duration of 18 weeks.

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| **Grade Bands: 6-8** | **Unit 1** | **Unit 2** | **Unit 3** | **Unit 4** | **Unit 5** |
| **Instructional Segment:** | Employability Skills and Typing | Intro to Programming: Hedy Levels 1-10 | Intermediate Programming: Hedy Levels 11-16 | Game Design Basics with Python | Student-Directed Project: Create a Digital Product |
| **Estimated Time:** | 3 weeks and throughout the year | 4 weeks | 3 weeks | 4 weeks | 4 weeks |
| **Core Concepts/ Vocabulary:** | Etiquette – Practicing behaviors and speech patterns that are appropriate for business and other professional environments.  Time Management – strategies to meet deadlines, prioritize tasks, and avoid procrastination.  WPM – words per minute; a measure of typing speed. | Code – a series of instructions that are executed by a computer to solve a problem or accomplish a task.  Variable – a letter or word that stands in for another value. Frequently used for storing and recalling data in programming.  List – an ordered set of related values that can be used to store and organize data.  Conditional – an if/then statement that allows programs to behave differently based on input. | Algorithm – a procedure for solving a problem, like the steps in a recipe.  Loop – a statement that allows you to perform repetitive tasks without having to manually write each instance.  Comparison – a character like <, >, or == used to check if one value is less than, greater than, or equal to another value.  Python – a real-world programming language used by professionals in a variety of fields, from computer science to biology and physics. | Input – information provided to a program to change its function, such as a user pressing buttons, typing text, or the program reading a file.  Output – the results of an executed program, which may take the form of moving a character, emitting a sound, displaying text or images on a screen, etc.  GDD – a Game Design Document that includes plans for characters, story, theme, and gameplay. | Mockup – a model or representation of a product used for planning, promotion, and evaluation of design.  Layout – the arrangement of elements on a page, in a picture, or in a work of art.  Requirements – desired elements or features of a product as requested by a user or customer.  Feedback – recommendations for improvement of a product provided by testers, users, or other creators. |
| **GaDOE Standards:** | * **MS-CS-FID-1** Demonstrate employability skills required by business and industry. * 1.1 Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities. * 1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods. * 1.3 Exhibit critical thinking and problem-solving skills to locate, analyze and apply information in career planning and employment situations. * 1.4 Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity. * 1.5 Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply teamwork skills. * 1.6 Present a professional image through appearance, behavior, and language. | * **MS-CS-FID-2** Develop a plan to create, design, and build a website with digital content to a specific target market. * 2.1 Identify the objectives (e.g., increase sales, promote new products, increase company awareness, target new customers) for the website’s target market. * 2.2 Specify website requirements, including timeline and resources, and organize them into a requirements document. * 2.3 Find and evaluate similar websites (in terms of overall function and layout) using an evaluation instrument for side-by-side comparison. Consider major design elements (ease of use, responsiveness, adaptability to mobile, tablet and desktop, etc.). * 2.4 Evaluate a variety of web design tools and development platforms using an evaluation instrument and choose the appropriate platform. * 2.5 Create a plan on paper or in a word processing document that outlines the content of the website. | * **MS-CS-FID-4** Create a single functional web page using a web development platform based on a design mockup and user requirements. * 4.1 Create and edit images and graphics for website publication. * 4.2 Plan, produce, and edit digital audio for website publication. * 4.3 Plan, produce, edit, and post a multimedia-rich video project to a website. * 4.4 Plan, produce, and edit animations for website publication. * **MS-CS-FID-5** Develop and use a test plan to debug each new website version to ensure it runs as intended and meets the end-user requirements for a responsive site. * 5.1 Create a test and debug plan. Resolve issues and fix any errors that surface during the test and debug process. * 5.2 Create an end user testing plan, get user feedback, and incorporate feedback into the final website. * 5.3 Prepare website for publishing and promotion. | * **MS-CS-FID-6** Develop a plan to create, design, and build a game with digital content for a specific target market. * 6.1 Explore various game types, including role-playing games (RPG), real-time strategy (RTS), simulations, puzzles, educational, massively multiplayer online (MMO), and others. * 6.2 Create a Game Design Document (GDD), which includes, characters, story, theme, and gameplay mechanics. * **MS-CS-FID-7** Develop a visual model of a game using the Game Design Document (GDD). * 7.1 Create storyboards from the GDD that demonstrate game progression and consistent use of a theme. * 7.2 Use the GDD to design the wireframes and comprehensive layout for the user experience (UX). * **MS-CS-FID-8** Create a functional game, using a game development platform, based on the storyboards, wireframes, and comprehensive layout. * 8.1 Create game elements, backgrounds, and characters. * 8.2 Use scripting languages to create desired game mechanics, and to control the environment, user interface (UI), and character behaviors. * 8.3 Plan, produce, and edit graphics and animations for game publication. * 8.4 Plan, produce, and edit digital audio for game publication. | * **MS-CS-FID-3** Design digital products that reveal a professional layout and look by applying design principles to produce professional quality digital products. * 3.1 Identify graphical elements and the appropriate use of elements on a web site. * 3.2 Explore and apply color principles to digital products. * 3.3 Establish a brand through consistent use of graphics, color, layout and text. * 3.4 Analyze the look and layout of a website based on the first impression of content and page elements. Get feedback from independent users and incorporate where appropriate. * **MS-CS-FID-8** Create a functional game, using a game development platform, based on the storyboards, wireframes, and comprehensive layout. * 8.1 Create game elements, backgrounds, and characters. * 8.2 Use scripting languages to create desired game mechanics, and to control the environment, user interface (UI), and character behaviors. * 8.3 Plan, produce, and edit graphics and animations for game publication. * 8.4 Plan, produce, and edit digital audio for game publication. * **MS-CS-FID-9** Develop a test plan to debug and use each time a version of the game is released to ensure it runs as intended and meets the end-user requirements. * 9.1 Create a test and debug plan. Resolve any issues and fix any errors that surface during the test and debug process. * 9.2 Create an end user testing plan, get user feedback, and incorporate feedback into the final game. * 9.3 Prepare final game for publishing prior to publishing to the target audience. |