

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
CONTENT: CAREER AND TECHNOLOGY EDUCATION DEPARTMENT
WEBPAGE DESIGN II (INTRO TO CODING)

Webpage Design (Intro to Coding)

<p>Pacing Guide: Webpage Design II (Coding) is a half-year course that meets on a rotating basis for three (3) 55-minute blocks and one (1) 40-minute block for every five (5) day cycle.</p>	<p>Algorithms (1.5 weeks-assessment) Pair Programming (1.5 weeks-assessment) Loops in Programs (2 weeks-assessment) While Loops (1 week-assessment) Nested Loops (1 week-assessment) Patterns in Programs (1 week-assessment) Functions vs. Loops (1 week-assessment) Functions and Function Calls (2 weeks-assessment) Debugging Strategies (1.5 weeks-assessment) The Debugging Process (1.5 weeks-assessment) Conditional Statements (1.5 weeks-assessment) Nested Conditionals (1.5 weeks-assessment) Collision Events and Event handlers (1.5 weeks-assessment) Animated Stories (1.5 weeks)</p>
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Differentiation/Accommodations/Modifications

Note: Each district should review the various strategies noted below and determine which are applicable for their population within varied grade levels and languages and make edits where needed.

Gifted and Talented	English Language Learners	Students with Disabilities	Students at Risk of School Failure
<p><i>(content, process, product and learning environment)</i> Extension Activities</p> <ul style="list-style-type: none"> ● Open forums and debates in the classroom regarding controversial issues ● Competitive and collaborative projects ● Independent Projects requiring research skills for assessing information 	<p>Modifications for Classroom</p> <ul style="list-style-type: none"> ● In-Class-Support ● Graphic Organizers ● Note-taking guides ● Clarify assignments, directions and instructions ● Highlight key vocabulary <p>Modifications for Assignments</p> <ul style="list-style-type: none"> ● Internet bilingual dictionaries during class and during assignments ● Extended time for all assessments ● Use of graphic organizer ● Simplification of requirements ● Access to teacher power points and notes ● Collaboration between ESL and mainstream classroom teachers 	<p><i>(appropriate accommodations, instructional adaptations, and/or modifications as determined by the IEP or 504 team)</i></p> <p>Modifications for Classroom</p> <ul style="list-style-type: none"> ● In-Class-Support ● Graphic Organizers ● Provide Study Guides ● Extended time on assessments ● Analogies ● Note-taking guides ● Establish Timelines ● Clarify Assignments, directions and instructions ● Chapter/lecture notes ● Parent/teacher communication ● Assistive technology ● Check students independent work ● Assist students with steps to complete assignments 	<p>Modifications for Classroom Pair visual prompts with verbal presentations</p> <p>Modifications for Classroom:</p> <ul style="list-style-type: none"> ● Intervention and Referral Team (I&RS) in-house strategies ● Extra textbooks at home ● Extended time for assignments ● Modify assignments ● Assign peer helper in class ● Parent/Teacher communication ● Provide a copy of class notes ● Verbal reminders ● Check student independent work ● Assist student with planning of assignments <p>Modifications for Assignments/Homework</p> <ul style="list-style-type: none"> ● Extended time for assignments ● Simplify assignments into smaller units or phases ● Provide student with clear expectations and grading criteria

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	<p>Modifications for Homework</p> <ul style="list-style-type: none"> ● Extended time to complete assignments ● Modified homework assignments ● Provide students with clear expectations <p>Modifications for Assessments:</p> <ul style="list-style-type: none"> ● Extended time for tests and quizzes ● Restate and clarify directions and questions ● Provide study guides <p>Resources</p> <p>WIDA Standards</p> <ul style="list-style-type: none"> ● Standard 1: Social and Instructional Language ● Standard 2: The language of Language Arts ● Standard 3: The language of Mathematics ● Standard 4: The language of Science ● Standard 5: The language of Social Studies 	<p>Modifications for Assignments/Homework</p> <ul style="list-style-type: none"> ● Extended time for assignments ● Simplify assignments into smaller units or phases ● Provide student with clear expectations and grading criteria <p>Modifications for Assessments:</p> <ul style="list-style-type: none"> ● Extended time for tests and quizzes ● Restate and clarify directions and questions ● Provide study guides ● Establish procedures for accommodations/modifications for assessments 	<p>Modifications for Assessments:</p> <ul style="list-style-type: none"> ● Extended time for tests and quizzes ● Restate and clarify directions and questions ● Provide study guides
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CONTENT: Unit 1			
Theme: Algorithms			
Essential Questions: What do we mean when we say “programming”? How are algorithms related to everyday real-life activities?			
<p>Content: <i>(As a result of this learning segment, students will know...)</i></p> <ul style="list-style-type: none"> • How to write algorithms • How to represent an algorithm as a computer program • How to apply the rules of pair programming 	<p>Skills: <i>(As a result of this learning segment, students will be able to...)</i></p> <ul style="list-style-type: none"> • Understand the difficulty of translating real problems into programs • Recognize that ideas may be misinterpreted by a computer • Practice communicating ideas through codes and symbols • Decompose large activities into a series of smaller events • Arrange sequential events into their logical order • Create a program to complete an image using sequential steps • Select an argument for a given command 	<p>Assessments: <i>(The above Essential Questions will be assessed with the following formative and summative measures:)</i></p> <ul style="list-style-type: none"> • Classroom Assignments and Activities • Independent Practice • Quizzes/Tests • Projects • Benchmark assessments • Final exam 	<p>Standards (NJSLs): 8.1.12.A.1-4 8.2.12.E.1-4</p> <p>Math NJSLs.MATH.CONTENT.HSN.Q.A.1</p> <p>Writing NJSLs.ELA-LITERACY.W.11-12.2 Career Ready Practices: CRP 2,4,5,6,11</p>
			<p>Pacing Chart/Time Frame: 3 weeks-assessment</p>
			<p>Materials: Demonstrations Classwork exercises/worksheets Computer software applications Internet research and activities</p>

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CONTENT: Unit 2			
Theme: Loops			
Essential Questions: How are loops used in programming? What are the benefits of using a loop structure instead of manual repetition?			
<p>Content: <i>(As a result of this learning segment, students will know...)</i></p> <ul style="list-style-type: none"> • When a loop can be used to simplify a repetitive action • How loops are used to make programs more efficient • Various loops including while loops and nested loops 	<p>Skills: <i>(As a result of this learning segment, students will be able to...)</i></p> <ul style="list-style-type: none"> • Convert a set of multiple actions into a single loop • Create a program for a given task which loops a single command or sequence of commands • Draw complex images by looping simple sequences • Employ a combination of looped commands to move and perform actions • Distinguish between loops • Use a while loop to create programs that solve problems with unknown values • Nest loops and conditionals to analyze multiple value conditions 	<p>Assessments: <i>(The above Essential Questions will be assessed with the following formative and summative measures:)</i></p> <ul style="list-style-type: none"> • Classroom Assignments and Activities • Independent Practice • Quizzes/Tests • Projects • Final Exam • Benchmark assessments 	<p>Standards (NJSLs): 8.1.12.A.1-4 8.2.12.E.1-4</p> <p>Math NJSLs.MATH.CONTENT.HSN.Q.A.1</p> <p>Writing NJSLs.ELA-LITERACY.W.11-12.2</p> <p>Career Ready Practices: CRP 2,4,5,6,11</p>
Pacing Chart/Time Frame: 4 weeks- assessment			
Materials: Demonstrations Classwork exercises/worksheets Computer software applications Internet research and activities			

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CONTENT: Unit 3			
Theme: Functions			
Essential Questions: How are functions used in programming? What are the benefits of using functions?			
<p>Content: <i>(As a result of this learning segment, students will know...)</i></p> <ul style="list-style-type: none"> • How to find patterns in processes • How to identify variables • How functions are used to make programs more efficient • The difference between a function and the function call 	<p>Skills: <i>(As a result of this learning segment, students will be able to...)</i></p> <ul style="list-style-type: none"> • Interpret symbols as they relate to physical manipulatives • Distinguish between functions and loops • Use pre-determined functions to complete tasks • Modify existing functions • Create a program that calls a function from within a loop • Create a function from scratch 	<p>Assessments: <i>(The above Essential Questions will be assessed with the following formative and summative measures:)</i></p> <ul style="list-style-type: none"> • Classroom Assignments and Activities • Independent Practice • Quizzes/Tests • Projects • Final Exam • Benchmark assessment 	<p>Standards (NJSL): 8.1.12.A.1-4 8.2.12.E.1-4</p> <p>Math NJSL.MATH.CONTENT.HSN.Q.A.1</p> <p>Writing NJSL.ELA-LITERACY.W.11-12.2 Career Ready Practices: CRP 2,4,5,6,11</p>
			<p>Pacing Chart/Time Frame: 4 weeks- assessment</p>
			<p>Materials: Demonstrations Classwork exercises/worksheets Computer software applications Internet research and activities</p>

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CONTENT: Unit 4			
Theme: Debugging			
Essential Questions: Why is debugging an essential element in programming? What are common debugging tactics and difficulties?			
<p>Content: <i>(As a result of this learning segment, students will know...)</i></p> <ul style="list-style-type: none"> • The importance of debugging • Strategies used to search for bugs • The first thing to look for in a buggy program • Easy and hard to find bugs 	<p>Skills: <i>(As a result of this learning segment, students will be able to...)</i></p> <ul style="list-style-type: none"> • Predict where a program will fail • Modify an existing program to solve errors • Identify an algorithm that is unsuccessful when the steps are out of order • Reflect on the debugging process 	<p>Assessments: <i>(The above Essential Questions will be assessed with the following formative and summative measures:)</i></p> <ul style="list-style-type: none"> • Classroom Assignments and Activities • Independent Practice • Quizzes/Tests • Projects • Final Exam • Benchmark assessment 	<p>Standards (NJSLs): 8.1.12.A.1-4 8.2.12.E.1-4</p> <p>Math NJSLs.MATH.CONTENT.HSN.Q.A.1</p> <p>Writing NJSLs.ELA-LITERACY.W.11-12.2 Career Ready Practices: CRP 2,4,5,6,11</p>
			<p>Pacing Chart/Time Frame: 3 weeks-assessment</p>
			<p>Materials: Demonstrations Classwork exercises/worksheets Computer software applications Internet research and activities</p>

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CONTENT: Unit 5			
Theme: Conditionals			
Essential Questions: How are conditionals used to tailor a program to specific information? When is a conditional statement useful?			
<p>Content: <i>(As a result of this learning segment, students will know...)</i></p> <ul style="list-style-type: none"> • The purpose of conditionals • How to nest conditionals • How conditional statements function • How conditional statements are used to make logic-based choices 	<p>Skills: <i>(As a result of this learning segment, students will be able to...)</i></p> <ul style="list-style-type: none"> • Define circumstances when certain parts of programs should run and when they shouldn't • Determine whether a conditional is met based on criteria • Traverse a program and predict the outcome • Translate spoken language conditional statements into a program • Identify when a conditional can be used to deal with unknown values • Execute an algorithm with a conditional statement • Solve puzzles using a combination of looped sequences and conditionals • Write functions that execute nested conditionals 	<p>Assessments: <i>(The above Essential Questions will be assessed with the following formative and summative measures:)</i></p> <ul style="list-style-type: none"> • Classroom Assignments and Activities • Independent Practice • Quizzes/Tests • Projects • Benchmark assessment • Final exam 	<p>Standards (NJSLs): 8.1.12.A.1-4 8.2.12.E.1-4</p> <p>Math NJSLs.MATH.CONTENT.HSN.Q.A.1</p> <p>Writing NJSLs.ELA-LITERACY.W.11-12.2</p> <p>Career Ready Practices: CRP 2,4,5,6,11</p>
Pacing Chart/Time Frame: 3 weeks- assessment			
Materials: Demonstrations Classwork exercises/worksheets Computer software applications Internet research and activities			

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CONTENT: Unit 6			
Theme: Events			
Essential Questions: How can events be used to add variety to a pre-written algorithm? Why do we need to be able to handle events in a program?			
<p>Content: <i>(As a result of this learning segment, students will know...)</i></p> <ul style="list-style-type: none"> • How to detect collision events in programs • How to create different games with given constraints • How to create an animated story 	<p>Skills: <i>(As a result of this learning segment, students will be able to...)</i></p> <ul style="list-style-type: none"> • Recognize actions as signals to initiate commands • Differentiate pre-defined actions and event-driven ones • Create a game using event handlers • Identify actions that correlate to input events • Create animated, interactive stories using sequence, loops, and event-handlers 	<p>Assessments: <i>(The above Essential Questions will be assessed with the following formative and summative measures:)</i></p> <ul style="list-style-type: none"> • Classroom Assignments and Activities • Independent Practice • Quizzes/Tests • Projects • Final Exam • Benchmark assessments 	<p>Standards (NJSLs): 8.1.12.A.1-4 8.2.12.E.1-4</p> <p>Math NJSLs.MATH.CONTENT.HSN.Q.A.1</p> <p>Writing NJSLs.ELA-LITERACY.W.11-12.2 Career Ready Practices: CRP 2,4,5,6,11</p>
			<p>Pacing Chart/Time Frame: 3 weeks-assessment</p>
			<p>Materials: Demonstrations Classwork exercises/worksheets Computer software applications Internet research and activities</p>