

Unit 7: JavaScript Functions and Parameters

Content Area: **Technology**
Course(s):
Time Period: **Marking Period 4**
Length: **8 blocks**
Status: **Published**

Course Description & Instructional Notes

Course Description

Learn to write reusable code with functions and parameters.

Prior Knowledge:

Retained knowledge from previous units

Instructional Notes:

The course utilizes a blended classroom approach. The content is fully web-based, with students writing and running code in the browser. Teachers utilize tools and resources provided by CodeHS to leverage time in the classroom and give focused 1-on-1 attention to students. Each unit of the course is broken down into lessons. Lessons consist of video tutorials, short quizzes, example programs to explore, and written programming exercises.

Technology Integration:

Computer Science naturally integrates technology on a daily basis.

Enduring Understandings

Some objects are so frequently represented that programmers can draw upon existing code that enables them to write solutions more quickly.

To find solutions to generalizable problems, programmers include functions in their code so that the same algorithm runs using different input values.

Essential Questions

How can we use previously written code to augment our programs?

How can algorithms be reused under different conditions?

Student Learning Objectives

Students will be able to:

- Explain the purpose of functions
- Create JavaScript functions
- Utilize JavaScript functions to solve simple problems
- Create functions that take in parameters as input
- Explain the purpose of functions
- Create JavaScript functions
- Utilize JavaScript functions to solve simple problems
- Create functions that take in multiple parameters as input, and use print statements for output
- Explain the purpose of functions
- Create JavaScript functions
- Utilize JavaScript functions to simplify graphics programs
- Identify repeated code that can be simplified with functions and parameters
- Create functions that take in multiple parameters as input, and create graphics as output
- Explain the purpose of returning a value from a function.
- Create functions that return values.
- Create programs that call functions with return values and store the result for later use.
- Explain the purpose of returning a value from a function.
- Create functions that return values.
- Create programs that call functions with return values and use the return values to solve a higher order problem.
- Identify the scope of a variable
- Identify which variables are in scope at a given point in a program

Vocabulary & Learning Experiences

Essential Academic Vocabulary

Define a Function, Call a Function, Argument, Function body, Parameter, DRY Principle, Return, Return Value, Indentation, Variable, Scope, Global variable, Local variable

Planned Learning Experiences

Challenges: Functions and Parameters

Students will synthesize all of the skills and concepts learned in the Functions and Parameters unit to solve increasingly challenging puzzles.

Resources

CodeHS

Code.org

Blown to Bits

Assessments

Formative Assessments

Think like a Computer Scientist Journal:

Students complete at least five journal entries based on teacher provided prompts that could include major topics, key points, vocabulary, syntax, and/or flowcharts/programming planning.

Quizzes embedded in CodeHS Modules and Code Review

Summative Assessments

Unit Quizzes (multiple choice only)

Student Choice Unit Project

NJSLS Standards

NJSLS Standards Copied and Pasted as well as linked.

[NJSLS Computer Science and Design Thinking](#)

8.2.12.ED.1: Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.

8.2.12.ED.4: Design a product or system that addresses a global problem and document decisions made based on research, constraints, trade-offs, and aesthetic and ethical considerations and share this information with an appropriate audience.

8.2.12.ED.5: Evaluate the effectiveness of a product or system based on factors that are related to its requirements, specifications, and constraints (e.g., safety, reliability, economic considerations, quality control, environmental concerns, manufacturability, maintenance and repair, ergonomics).

8.2.12.ED.6: Analyze the effects of changing resources when designing a specific product or system (e.g., materials, energy, tools, capital, labor).

8.2.12.NT.2: Redesign an existing product to improve form or function.

Additional NJSL Standards

NJSL Standards Copied and Pasted as well as linked.

Interdisciplinary Connections

NJSL Career Readiness, Life Literacies, and Key Skills

NJSL Companion Standards Grades 9-12 (Reading & Writing in Science & Technical Subjects)

9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas

9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice

9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).

9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.

Modifications/Accommodations

GENERAL CONSIDERATIONS FOR DIVERSE LEARNERS

English Language Learners	Students Receiving Special Education Services	Advanced Learners
- Personal glossary	- Small group/One to one	- Use of high level academic vocabulary/texts
- Text-to-speech	- Additional time	
- Extended time	- Review of directions	- Problem-based learning
- Simplified / verbal		

- instructions
- Student restates information
- Pre assess to condense curriculum
- Frequent breaks
- Space for movement or breaks
- Interest-based research
- Extra visual and verbal cues and prompts
- Authentic problem-solving
- [WIDA Can Do Descriptors for Grade 9-12](#)
- Preferential seating
- Homogeneous grouping opportunities
- Follow a routine/schedule
- [WIDA Essential Actions Handbook](#)
- Rest breaks
- [FABRIC Paradigm](#)
- Verbal and visual cues regarding directions and staying on task
- [Wall Township ESL Grading Protocol](#)
- Checklists
- Immediate feedback

[Knowledge and Skill Standards in Gifted Education for All Teachers](#)

[Pre-K-Grade 12 Gifted Programming Standards](#)

[Gifted Programming Glossary of Terms](#)

*Use WIDA Can Do Descriptors in coordination with Student Language Portraits (SLPs).

Students receiving Special Education programming have specific goals and objectives, as well as accommodations and modifications outlined within their Individualized Education Plans (IEP) due to an identified disability and/or diagnosis. In addition to exposure to the general education curriculum, instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

Students with 504 Plan

Teachers are responsible for implementing designated services and strategies identified on a student's 504 Plan.

[Considerations for Special Education Students 6-12](#)

[National Center on Universal Design for Learning - About UDL](#)

[UDL Checklist](#)

[UDL Key Terms](#)

At Risk Learners / Differentiation Strategies

Alternative Assessments Independent Research & Projects

Jigsaw

Choice Boards Multiple Intelligence Options

Think-Tac-Toe

Games and Tournaments Project-Based Learning

Cubing Activities

Group Investigations	Varied Supplemental Activities	Exploration by Interest
Learning Contracts	Varied Journal Prompts	Flexible Grouping
Leveled Rubrics	Tiered Activities/Assignments	Goal-Setting with Students
Literature Circles	Tiered Products	Homework Options
Multiple Texts	Graphic Organizers	Open-Ended Activities
Personal Agendas	Choice of Activities	Varied Product Choices
Homogeneous Grouping	Mini-Workshops to Reteach or Extend	Stations/Centers
	Think-Pair-Share by readiness or interest	Work Alone/Together
	Use of Collaboration of Various Activities	