



CodeHS

Coding Exploration Syllabus Mini Course (40 Contact Hours)

Course Overview and Goals

Coding Explorations is a mini-course where students learn to code as it relates to music, art, and sports. Using a block-coding environment, students create music beats, explore the digital art medium by building coding programs that create collages, and develop their own sports video games and simulations using code.

Learning Environment: 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.

Programming Environment: Students write and run JavaScript programs in the browser using the CodeHS editor.

More information: Browse the content of this course at <https://codehs.com/course/5194>

Course Breakdown

Unit 1: Coding in Music (12 - 15 hours)

Students will learn how to add chords, notes, and visualizations to their songs. For a final project, students create a full-length song with music visualization.

Objectives / Topics Covered	<ul style="list-style-type: none">● Expanding beats into songs● Using loops● Visualizing their beats● Final project
Example Assignments / Labs	<ul style="list-style-type: none">● Playing Cords<ul style="list-style-type: none">○ Many songs use a series of cords. In this activity, students will expand their beats into a series of cords to start making longer songs.● Set the Stage<ul style="list-style-type: none">○ Add even more flair to your musical creations with a visual representation of your music!

Unit 2: Generating Art with Code (12 - 15 hours)

Students learn how to code computer-generated fractals, filters, and collages. For a final project, students develop a program that tells a story using images, text, and sound.

Objectives / Topics Covered	<ul style="list-style-type: none">- Filtered Collage- Famous Artists- Face Filters- Paintbrush- Turtle Patterns- Gif Generator- Art Stories- Final Masterpiece
Example Assignments / Labs	<ul style="list-style-type: none">● Inspired Art<ul style="list-style-type: none">○ Students create an art piece inspired by the works of famous artists. Students learn about Warhol and Pollock, and attempt to emulate their styles in JavaScript.● Face Filters<ul style="list-style-type: none">○ Students learn how face filters are generated, and get practice using and manipulating face filters in their own programs.● Narrate a Story<ul style="list-style-type: none">○ Students create a narrative piece of art.

Unit 3: Coding in Sports (12 - 15 hours)

Students learn about event handlers and create more elaborate video games with images, sound, and multiple levels. As a final project, students make a multi-level putting game.

Objectives / Topics Covered	<ul style="list-style-type: none">● Game Events● Sound Effects● Make a Shot!● Air Horn App● Event Handlers● Putting Game● Level Up
Example Assignments / Labs	<ul style="list-style-type: none">● Score!<ul style="list-style-type: none">○ In this activity, you will add sounds that will play when your events are triggered.● Air Horn App<ul style="list-style-type: none">○ It's time to celebrate having made your first game in this course! Take what you've learned about events and create a program that plays whatever sound you choose when you click on the image.● Putting Game<ul style="list-style-type: none">○ Use events and sound effects to create a fully functional golf putting game.