

# CODING FOR YOUTH



## Simply Coding Sample Guide

Real World Computer Coding Courses for Youth!

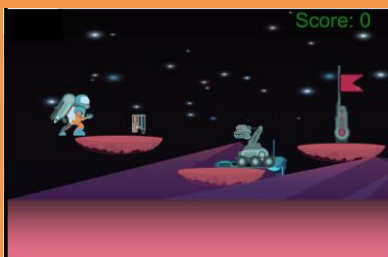
A Teacher Led / Supported Daily Outline

**Purpose:** This program is designed to give students confidence and increase their technology understanding through learning how to write code in JavaScript, using a simple text editor.

**Objective:** Through teacher-led instruction, support as well as self-paced learning, students will code three different games, from start to finish, using JavaScript. The three games are: Pong, Fish Adventure and a Side Scrolling Platformer. Afterwards they will use those games as a resource as they plan, prepare and then code their own custom game in JavaScript. Student's will also upload their custom game live on the web using GitHub.

**Schedule:** This outline will present a workable session schedule to help the students achieve this objective.

## JAVASCRIPT GAME DESIGN SAMPLE TEACHER GUIDE



# Session 1

## 1) Meet the kids and introduce yourself.

a) Learn their names! Take time to make them feel welcome and comfortable with who the teachers are.

Ask some questions to the group, for example:

- i) Who here has ever coded before?
- ii) Who here has ever heard of JavaScript?
- iii) Who here likes to play games?
- iv) What kind of games do you like?

## 2) Summarize the objective of this course.

a) Give them time to ask any questions!

## 3) Guess this secret game!

a) You can do this demo yourself, if comfortable, or show the video from 'Instructor Resources' in your account.

b) Load up the code for the pong game to show them what JavaScript looks like.

i) Lesson 2.5 Pong Game code for your Instructor Resources.

c) Have the students guess what game it is, they usually can figure it out pretty quick.

d) Open the pong game in the browser and show them the game that the code created.

## 4) Live Demo! Do a coding demo with how JavaScript works...this game is boring let's spice it up!

a) Ask the students to come up with a few ideas on how to make the pong game more fun.

b) Pick one idea and explain the process of problem solving with code, answer questions like 'what' and 'how' about their ideas.

c) Code in one of the ideas in front of the class (someone will say multiple pong balls, i promise, that's the best one to do).

d) To code in multiple balls, add a setInterval function (given below) BELOW the last ball property, ball.pushUp(4);

```
setInterval(function() {  
    var ball = new sjs.Image("Images/spike.png");  
    ball.type = "ball";  
    ball.center();  
    ball.friction = 0;  
    ball.pushRight(4);  
    ball.pushUp(5);  
}, 1500);
```

This code will create a new ball every 1.5 seconds.

**Talking Point:** *Talk about not being afraid to edit the code in their games. Coding is all about trying out ideas, it's ok to make a mistake and problem solve. We can always help you get your code working.*

## 5) Registration: Get students their online accounts to access the course:

a) Students go to <https://signup.simplycoding.org> (just have it displayed on a computer they can see)

b) Students will put in information to create a username and password.

c) For school / group code enter: **ProvidedBySimplyCoding**

d) Have them select 'JavaScript Game Design' as the course!

## 6) Account Activation: Instructor logs into their Instructor account to approve each student.

a) Instructor Account login link: <https://simplycodingcourses.com/instructor>:

b) username: **ProvidedBySimplyCoding**

c) password: **ProvidedBySimplyCoding**

d) Once you login, click on the **Requests Tab** to start approving accounts.

# Session 1 (Continued)

- 7) **Start Coding:** Starting the Course.
  - a) Have the students all login by going to SimplyCoding.org > Login > Student Login
  - b) Next have them click on My Courses and then Lessons > Lesson 1 > Overview
  - c) Complete Lessons 1 - 1.5 together as a class!
  - d) Let the students try each mini activity on their own. The ones that finish first can also help their neighbor if needed.
  - e) Once all the students have the ball image showing up inside their game, then let them go at their own pace for the rest of the time!

## Session 2

- 1) **Welcome the students** (We like to review their names again), have them share what they've learned.
- 2) **Fix the Error Challenge!**
  - a) <https://simplycodingcourses.com/files/jsfun/bodyOnload.html>
  - b) That link is also found at the bottom of Lesson 1.9.
    - i) You can send this link to everyone using the Announcements tab.
  - c) See who does that exercise the fastest! Give a small prize like a Hershey kiss or a carrot stick or something!
    - i) Challenge ANSWER - line 20 should be: **<body onload="runPlease()">**
- 3) **Self-Paced Learning:** Now have the students login to their Lessons and pick up where they left off.
- 4) **Live Demo Time:** Half way through the session stop the class and do a demo about Object Types and On-Hit functions.
  - a) They should be somewhere around Lesson 2.2, if not then choose a demo on what they have learned, like object properties for example.
  - b) You can do this demo yourself, if comfortable, or show the video from the 'Resources' tab in your instructor account.
  - c) Have them look at the onHit code in their game! Also load up your pong game code (2.3 from teachers resources) for the whole class to see it together.

```
sjs.onHit("ball", "paddle", function(x, y){
    sjs.bounceOff(x, y);
});
```

- d) Ask them what the words in quotes, "ball" & "paddle", are referring to! Make sure they understand that they come from the ball.type = "ball"; code.
- e) Edit the ball.type = "ball"; to ball.type = "pizza"; Now what will happen? What else needs to change for the code to work properly?
- f) Once you feel they understand that concept, ask them about the code segment
- g) What does the x & y represent?
  - i) Edit the 'x' to be an 'a', what else needs to change?
- h) Class question!: How can we edit the code to make the ball teleport to the center of the screen when it collides with the paddle? Answer:

```
sjs.onHit("ball", "paddle", function(x, y){
    x.center();
});
```

- i) onHit's will always run the code BETWEEN THEIR BRACKETS when the two defined object types collide.  
**Ask them where the opening and closing brackets are located!**

- 5) **Self-Paced Learning:** Have the students continue working at their own pace with help as needed.

# Session 3

- 1) **Welcome the students**, ask them if they played any games this past week and if they understand a little bit more how that game was coded!
- 2) **Fix the Error Challenge!**
  - a) <https://simplycodingcourses.com/files/jsfun/onHits.html>
  - b) That link is also found at the bottom of Lesson 2.9.
    - i) You can send this link to everyone using the Announcements tab.
  - c) See who does that exercise the fastest! Give a small prize like a Hershey kiss or a carrot stick or something!
    - i) Challenge ANSWER - line 23 should be: `sjs.onHit("pizza", "balloon", function(x,y){`
- 3) **Questions!**
  - a) Let the students ask any questions about what they've learned.
  - b) If any student has an error in their code, choose one and see if the class can help them fix it.
    - i) Remember to look in the console for the error to help identify what the issue may be.
- 4) **Self-Paced Learning:** Now have the students login to their Lessons and pick up where they left off.
- 5) **Live Demo Time:** Half way through the session stop the class and do a demo about keyDown Functions!
  - a) keyDown Functions demo. You can do this demo yourself, if comfortable, or show the video from the 'Resources' tab in your instructor account.
  - b) Have them look at the keyDown function code in their game! Also load up your pong game code (2.2 from teachers resources) for the whole class to see it together.
  - c) **Ask them:**
    - i) Where are the opening and closing brackets are for this keyDown function?
    - ii) What key needs to be pressed to trigger this function?
    - iii) How would you cause the paddle to go right when the left key is pressed?
    - iv) How would you also cause the ball to be centered when the left key is pressed?

```
sjs.keyDown(LEFT_KEY, function(){
    paddle.pushRight();
    ball.center();
});
```

    - v) keyDown functions will always run the code between their brackets when the specified key is pressed!
- 6) **Self-Paced Learning:** Have the students continue working at their own pace with help as needed.

**The above is a sample from our JavaScript Game Design daily outline.**

Sessions 4 on, follow the same patterns of coding challenges, group participation, self-paced learning with one on one help and live demos for the whole class.

Every Instructor receives the completed outline in their Instructor account as well as the working code for all lesson activities, live demo videos and other videos that they can supplement or teach live as needed.

We are available to support instructors and make the experience a success for the students!

# Instructor Account Information

Main Dashboard of the Instructor Account:

Home Students Sign Up Requests Announcements Resources

Edit Username / Password of Students Approve New Students Send Messages to their class Teacher Resources!

## Courses

+ Create Course

Name	Students	Sign Up Requests	Ungraded Submissions	All Progress
Intro to Programming	7	0	0	Progress View Students Progress / Grade Uploads
JavaScript Game Design	4	0	0	Progress

When an Instructor clicks on 'Resources' they will see a list of their courses:

## Teacher Resources

- Intro to Programming
- JavaScript Game Design

When you click on a course to view the resources for that curriculum, you'll have everything you need:

## Teacher Resources - JavaScript Game Design

**Goal:** To give youth a real experience learning JavaScript through coding browser games, uploading their games live on the web and an opportunity to compete in a game design contest!

### Teacher Training Videos

- Quick Overview
- Class Management
- Getting Started
- \*\*The Coding Workspace\*\*
- File Tree
- Fixing Code Part 1
- Fixing Code Part 2

### Course Daily Outline

This outline is broken into 1.5 hour segments (1 Day = ~1.5 hours class time). You can adjust this outline to fit your specific age group and meeting schedule.

[Download Full PDF of Daily Schedule Outline Here!](#)

[Day 1](#)

### New Student Registration

1. Watch video **Getting Started** for new student registration demo.
2. Students go to [Signup.SimplyCoding.org](http://Signup.SimplyCoding.org)
3. Complete the form from step 1.
  - a. **Class period:** NameofLocation
  - b. **School code:** ProvidedbySimplyCoding
  - c. **Class:** JavaScript Game Design
4. After the student clicks **Submit** they will go to a 'Thank You' page.
5. Teacher can then click on the tab **Sign Up Requests** to activate and enroll student's into their class.
6. Students then go to [SimplyStem.com](http://SimplyStem.com), hover over the menu item 'Login' and select Student Login.
7. They then use the username and password created to login to their course!

### Course Resources

Teacher Answer Code Download - [Click Here](#)

The download above contains all the working code from each lesson