# Fairfax Collegiate

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# Minecraft Mods with Java 7-9 Syllabus

## Course Goals

**1 Java**
Students develop fundamental skills and concepts in Java programming which will enable them to alter the game mechanics of Minecraft.

**2 Event Based Modding**
Students utilize the event handling system incorporated by Minecraft Forge to add custom behavior to Minecraft.

**3 Extension Based Modding**
Students add their own recipes, blocks, and items to the game by extending the preexisting systems implemented in Minecraft.

## Course Topics

**1 Java Fundamentals**
Students learn how to program basic scripts using concepts of variable declaration, conditional logic, and loop control.

**2 Functional Programming**
Students learn the programming paradigm known as functional programming. Under this paradigm, code is written as a series of functions where each function is dedicated to a subtask.

**3 Structure of Minecraft**
Students understand the patterns and behavior of the game mechanics in Minecraft.

**4 Event Driven Modding**
Students implement methods (functions) that will execute when a specific event occurs, thus customizing their gameplay.

**5 Object Oriented Programming**
Students write classes and extensions of classes in Java to provide specific functionality in self-contained objects.

**6 Adding Blocks**
Students create their own block types with their own specific properties and qualities and add them to the game environment.

**7 Adding Items**
Students add their created item types with their own specific uses and abilities to the game.

**8 Adding Recipes**
Students design their own crafting recipes that alter the behavior and strategy of the game.

## Course Schedule

### Day 1

**Introduction and Icebreakers**
Students introduce themselves to each other and discuss their previous experience with programming if they have had any.

**Introduction to Minecraft**

Students interact with the Minecraft environment they will be modding and testing in. Students will learn the fundamental aspects of gameplay and game mechanics in Minecraft.

**Hello World**
Students set up their Minecraft environments and learn about variable declaration, syntax, and console output.

## Day 2

**Block Logic**
Students conditionally alter their player using if statements and boolean logic.

**Pack a Punch**
Students strengthen their sense of conditional logic and learn about for loops.

## Day 3

**Chicken Hunt**
Students combine their knowledge of loops and conditional logic to create a minigame.

**Chicken Hunt Fun**
Students complete assignments to build on the minigame they created earlier.

## Day 4

**Chicken Hunt Fun**
Students complete assignments to build on the minigame they created earlier.

**New Blocks - Pow Block**
Students are introduced to the JSON (Javascript Object Notation) data format by adding custom textures and behaviors to the new Pow Block in Minecraft.

**New Blocks - Present Block**
Students are introduced to the JSON (Javascript Object Notation) data format by adding custom textures and behaviors to the new Present Block in Minecraft.

## Day 5

**New Items - Boom Stick**
Students reinforce their understanding of JSON by adding custom textures and behaviors to the new Boom Stick weapon in Minecraft.

**Thor's Hammer**
Students reinforce their understanding of JSON by adding custom textures and behaviors to the new Thor's Hammer weapon in Minecraft.

## Day 6

**New Recipes**
Students utilize the JSON format to add new crafting recipes to the Minecraft game environment.

**New Crafting Items**
Students reinforce their understanding of adding items and crafting recipes to Minecraft.

## Day 7

**New Game Blocks**
Students reinforce their understanding of adding blocks to Minecraft.

**New Game Weapons**
Students reinforce their understanding of adding usable items to Minecraft.

## Day 8

**Final Project**
Students put their knowledge of Java programming and Minecraft Forge to the test by completing a final mini-game project.

## Day 9

**Final Project**
Students put their knowledge of Java programming and Minecraft Forge to the test by completing a final mini-game project.

## Day 10

**Final Project**
Students put their knowledge of Java programming and Minecraft Forge to the test by completing a final mini-game project.



*Updated on 3/21/2019*