Computer Programming Course Description

Introduction
Computer programming is fun and profitable.   Do you enjoy playing video games? Would you like to create your own?   Do you like anime? Do you like to create beautiful or strange artwork? You can do that with code in new ways that you've never dreamed of before.   Do you like solving puzzles?   Coding is puzzle solving.   And, coding gives you lots of career options. More and more jobs require coding in some form. And no matter what job you do, you can do more and get paid more if you know how to code.

When you learn to code, it's like Christmas (or the gift receiving holiday of your choice) every day!

With code, you can make robots think.   You can make video games. You can make filters for Snapchat. You can make websites. You can sift through data and make new discoveries. You can search for lost airplanes.   You can find new stars and planets. You can make elaborate holiday light and music displays. You can automate work that is tedious. You can analyze stock data.   The applications are unlimited! And, in fact, you are only limited by your own imagination. As Walt Disney once said, "if you can dream it, you can do it."

Course Content
In this course, students will start off by learning how to make beautiful graphics using code. Students will learn how to write the code and how to troubleshoot- also known as debugging. Students will learn how to write code that allows them to interact with graphics using the mouse both through clicking and dragging. At this point, students begin to understand the basics behind simple game design. Next, students will learn about important programming concepts like functions, conditional statements (if-then) and looping (for, while). For those that are new to programming, these concepts may not sound like much, but functions, conditional statements and loops are like locomotives on trains.   They do all the heavy lifting of programs that can find new planets and run super realistic graphics on gaming machines. When students are done with this course, they will have the ability to begin working at jobs that require programming and they will have a baseline of knowledge that will help them in future computer classes in high school and in college.

Reference Links
Here are some links that explain what programming is about and some of the benefits to you:

What do programmers actually do? By Physics Girl
https://youtu.be/g4a7_HH9Wbg?t=41

Karlie Kloss: Coding is a superpower
https://www.youtube.com/watch?v=Bwiln7v0fdc

Seb Lee-Delisle Coding that makes your pulse pound
https://vimeo.com/36278748

Code is the next universal language
https://www.ted.com/talks/linda_liukas_a_delightful_way_to_teach_kids_about_computers?referrer=playlist-code_the_next_universal_langu

Let's teach kids to code
https://www.ted.com/talks/mitch_resnick_let_s_teach_kids_to_code?referrer=playlist-code_the_next_universal_langu

Seb Lee-Delisle The Art of Creative Coding with outdoor art displays
https://youtu.be/WWY7NgGnPEw?t=15

Teaching Kids Real Math with Computers
https://www.ted.com/talks/conrad_wolfram_teaching_kids_real_math_with_computers#t-73091