Coding 101

Helpful Information for Instructor:

Programming languages – brief overview
a. C – a powerful language for building computer operating systems
b. Ada – used to control spacecraft, satellites and airplanes
c. Java – works on computers, cell phones and tablets
d. MATLAB – ideal for programs that need to carry out lots of calculations
e. Ruby – automatically turns lots of information into web pages
f. Javascript – a language used to build interactive websites
g. Scratch – programs are created by connecting blocks of code
h. Python – used to build games, tools and websites.

Work Sited:
Top 10 Coding Websites with chart comparison:
http://www.hongkiat.com/blog/sites-to-learn-coding-online/

Programming Apps:

Brief overview – an app is a self-contained program or piece of software designed to fulfill a particular purpose; an application, especially as downloaded by a user to a mobile device, some apps have websites as well
A. Hopscotch - Kids can learn to program using simple, easy, intuitive building blocks. Learn to code by making games.
B. Codecademy - Interactive courses on how to program. Courses are created by community and cover CSS, Java, and HTML.
C. Kodable - Kodable teaches kids the basics of any programming language in a fun game! Completely self-guided and designed for kids 5 and up.
D. Cargo-bot - Challenging puzzler teaches kids to think like programmers.
E. Codea - Innovative tool for programming on the iPad.
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**Icebreaker:**

5 minutes
Who has coded before? What apps have you used? Who has used Scratch? Are there any other coding apps that you have tried out? Have you heard of Hopscotch, Kodable or Codecademy? Any websites you have used to learn to code?

**Show video on coding:**

10 minutes
[http://youtu.be/dU1xS07N-FA](http://youtu.be/dU1xS07N-FA)

**Definitions:**

What does HTML stand for? – Hypertext markup language – special syntax (rules for communicating), hypertext means text with links in it. This is the basic format for language that is used to construct the World Wide Web.

What does CSS stand for? – Cascading style sheets – what makes web pages pretty. It is a style sheet language used for describing the look and formatting of a document written in a markup language.

- HTML is used to establish a page’s structure. It also lets us add text, links and images.
- CSS is used to control the design and layout of the page.

“**HTML is the writer and CSS is the designer of every web page**”

- Coding is very detailed and it’s easier to keep your code clean and orderly, using the line numbers to separate your code. And don’t forget, capitalization and spacing will be important in some programs and not in others. So keep that in mind when you are trying to fix your code.
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Let’s discuss some different websites you may want to use in the future:

**Top Programming Websites:**

1. [http://www.codecademy.com/](http://www.codecademy.com/) – Codecademy - acts like you have a teacher right there with a great interface
8. [http://www.khanacademy.org/cs](http://www.khanacademy.org/cs) – Khan Academy - not structured, more of a playground
10. [http://sqlzoo.net/](http://sqlzoo.net/) – SQLZOO – just a language that is used to store and retrieve data
11. [http://code.org/](http://code.org/) – this code may be compared to Scratch as you are working with blocks of code already created
12. [https://thimble.webmaker.org/](https://thimble.webmaker.org/) – online editor that teaches kids to write the Web
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Let's get started!

20-30 minutes  Activity 1 – Learn HTML in Codecademy

1. Login to Codecademy.com
2. Go to HTML & CSS
3. Under the link Introduction to HTML
4. Click on Build Your Own Webpage

1. <!DOCTYPE html> identifies the language for the computer
2. <html>
3. <head> this is where you may place comments, styling notes or link to an outside
4. CSS document
5. <title>Name of our webpage here</title> this will display in your browser, not on
6. your page
7. </head>
8. <title>Name of our webpage here</title> this will display in your browser, not on
9. your page
10. <body><h1>Type your name here</h1>
11. <image src="add your photo URL here within the parentheses"/>
12. </image> this will place a photo on your page
13. <p> Add a paragraph here</p> new paragraph
14. <p> Add a paragraph here</p> new paragraph
15. <p> Add a paragraph here</p> new paragraph
16. </body> closes code
17. </html> closes entire document

**ADDING AN IMAGE:**

After </h1> and before your first paragraph mark <p> add an image.
You will want to find a photo on the Internet and copy the URL link for that picture.
Here’s the code you will need to add your photo onto your web page. And remember your
src tag must be lowercase.

<image src="add your photo URL here within the parentheses"/>

**ADDING LINKS TO YOUR CODE:**

To change a picture or text into a link you will need the following code.

<a href="add your link within the parentheses here">add text of link here</a>

Now add two links into the paragraphs you created using any of the words as links.

**WHAT THE FINISHED CODE SHOULD LOOK LIKE WITH YOUR OWN INFO:**
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1<!DOCTYPE html>
2<html>
3<head>
4</head>
5<title>My Pilot Page</title>
6<body>
7<h1>Shannon's Page</h1>
9<p>I'm a Teen Librarian at the Cuyahoga County Public Library System.</p>
10<p>I'm learning code so I can teach teens at the library.</p>
11<p>This will be my next pilot program for the Connected Learning Group.</p>
12</body>
13</html>
Let's animate your name!

WHAT YOUR CODE SHOULD LOOK LIKE AT THE END:

```javascript
var red = [0, 100, 63];
var orange = [40, 100, 60];
var green = [75, 100, 40];
var blue = [196, 77, 55];
var purple = [280, 50, 60];
var myName = "Your Name";
letterColors = [red, orange, green, blue, purple]
if(10 < 3) {
    bubbleShape = "square";
}
else {
    bubbleShape = "circle";
}
drawName(myName, letterColors);
bounceBubbles()
```
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**30 minutes**  
**Activity 3 - Individual Project**

You may keep working with Codecademy or check out some of the other coding options:

Examples:
Option 1: [Web Developer Skills](#) - make your own website in Codecademy

Option 2: Create a Game using Javascript - go to [http://codeavengers.com](http://codeavengers.com). Click on *Build Games with Javascript*.

Option 3: [Blocks of Code](#) - go to [http://www.code.org](http://www.code.org) – start following Anna and Elsa from Frozen through an hour of code

- Share your work with others
- Questions?