

### AT A GLANCE

Teens learn basic and intermediate coding skills through self-directed courses and projects, with help from adult volunteers who have experience in computer programming.

### LEARNING OUTCOMES

Participants will:

- Apply basic coding concepts like algorithms, loops, and functions.
- Demonstrate computational thinking skills such as decomposing, pattern matching, and abstraction.
- Complete a variety of self-directed courses and projects in their area(s) of interest.
- Demonstrate leadership through peer mentoring.

### LOGISTICS

Format:	Location:	Audience & Max Group Size:	Run Time:	Set-up Time:	Clean-up Time:
Volunteer-run with staff host.  Participants work solo or in small groups.	TDC, program room or open area (if using Chromebooks)	Teens (age 13-17)  Max size depends on computer & space availability	90 minute weekly sessions  6 weeks	10 min	10 min

### MATERIALS NEEDED

These materials will be provided by your staff host.

Required	Alternative Materials
<ul style="list-style-type: none"> <li>• Chromebooks (preferred) or PCs – 1 per teen</li> <li>• Volunteer nametags</li> <li>• Paper and markers to make name tents for participants</li> <li>• Volunteer Log In Sheet (<b>provided</b>)</li> <li>• Whiteboard (1 or 2) and dry erase markers</li> <li>• TV or large screen and a laptop for the volunteers</li> <li>• Blue coding bin (for games and HDMI cable)</li> </ul>	<ul style="list-style-type: none"> <li>• Internet cards (if using PCs)</li> </ul>

## RESOURCES TO USE

This program uses high-quality free tutorials from these sites:

**Neocities** (<https://neocities.org/>)

- Free website hosting; teens will need to sign up with Neocities to create their site.

**Khan Academy** (<https://www.khanacademy.org/computing/computer-programming>)

- Intro to HTML/CSS: Making Webpages

**Codecademy** (<https://www.codecademy.com/learn/all>)

- HTML & CSS

**W3schools** (<http://www.w3schools.com/>)

- Learn HTML
- Learn CSS
- HTML Reference

## PREP & SET-UP CHECKLIST

### Before Arriving/In Advance of the Program

- Read through the program resources and training material
- Attend an orientation to your library (1/2 hour early before the first program session)

### Session Setup

- Your staff host will ensure the space is set up before the program. Let your host know if there is anything you need.
- Write the resource sites on a whiteboard or display them on the TV during work time.
- Set the tone by playing music, working on a class website, and making conversation with the teens when you check on them. Let them know it's ok to get up and walk around, or go to the washroom.

## OVERALL TIMING

**5 min** – Welcome & sign in

**10-20 min** – Group activity or game

**60-70 min** – Working on projects/tutorials (with volunteers helping)

**5 min** - Wrap-up

## SAMPLE SCHEDULE

Time:	Volunteer Activity:	Participant Activity:
5 min	<ul style="list-style-type: none"> <li>Greet teens as they arrive</li> <li>Have them sign in and find a computer and a seat.</li> <li>Any drop-ins are welcome if there's room; just have them write their name at the bottom of the sign-in sheet.</li> </ul>	<ul style="list-style-type: none"> <li>Enter the room, sign in and find a computer</li> </ul>
10-20 min	<ul style="list-style-type: none"> <li>Lead group activity or game</li> </ul> <p>On the <b>first day</b>, use this time to get to know the group:</p> <ul style="list-style-type: none"> <li>Welcome everyone to the program and introduce yourselves (names, backgrounds, and one way you use HTML/CSS).</li> <li>Ask the teens to introduce themselves as well, and say why they want to learn about web design (or why they came to the program).</li> <li>Tell them how it's going to work. Here's a sample script, which you can adapt as needed:</li> </ul> <p><i>We'll be learning HTML and CSS for the next five weeks; we're using some great online resources so you can go at your own pace, and once everyone has the fundamentals down, we'll spend the last week working in small teams to create a new website from scratch. The volunteers will be the judges and the best design will win! You can work on your own or pair up with someone if you like – we're going to keep this pretty casual and it's ok to talk. Be sure to let us know if you get stuck or have any questions.</i></p> <p>Starting on the <b>second day</b>, do a review of the previous week. Mix and match any of these activities, or invent your own:</p> <ol style="list-style-type: none"> <li>Ask if anyone had questions from the last class or from things they tried at home.</li> <li>Ask if anyone wants to show the group their website so far.</li> <li>Play an offline HTML game (see "additional resources" at the end of this document).</li> <li>Pull up any website's source code on the TV, and ask open-ended questions to help teens remember what they learned last time. For example, highlight an HTML tag and ask who can tell you what it does.             <ol style="list-style-type: none"> <li><a href="https://neocities.org/browse">Neocities.org/browse</a> gives you a selection of starter pages – these usually have fairly readable code so they're great examples. Avoid complicated or inappropriate pages! Try one of these links suggested by Daniel, one of our volunteers:                 <ol style="list-style-type: none"> <li><a href="https://fellowsl735.neocities.org/">https://fellowsl735.neocities.org/</a> - a basic page about food</li> <li><a href="https://ateamscience.neocities.org/">https://ateamscience.neocities.org/</a> - a simple page for a science club team</li> </ol> </li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>Participate in group activity or game</li> </ul> <p>Sample questions: <i>What does this tag do? What part of the site does this affect? (ie., where's the closing tag - if there is one). What would happen if...?</i></p>

	<ul style="list-style-type: none"> <li>iii. <a href="https://arsenalfcsg.neocities.org/">https://arsenalfcsg.neocities.org/</a> - a more complex page but still understandable one about sports (uses bootstrap for more advanced students)</li> <li>b. This is also modeling the idea of learning from real-world examples (i.e., find a page that does something cool and then look at the source code to see how they did it).</li> </ul> <p>5. Visit Calgary Public Library's very first website, circa 1997, thanks to the Internet Wayback Archive:  <a href="https://web.archive.org/web/19971222090803/http://public-library.calgary.ab.ca/">https://web.archive.org/web/19971222090803/http://public-library.calgary.ab.ca/</a> (be sure to click on "Not for Adults"!)</p> <ul style="list-style-type: none"> <li>a. Talk about how web design has changed in the last 20 years</li> <li>b. Look at the code and identify tags that are not good practice anymore – especially the style ones.</li> </ul>	
<p><b>60 min</b></p>	<p>Work time – solo or in pairs</p> <ul style="list-style-type: none"> <li>• Get everyone started by signing up for a Neocities account. This will act as their sandbox for the rest of the class. If a teen can't sign up on the first day, for example because they don't have an email account, that's fine – they can partner up with another teen, then figure it out with their parents before the next session.</li> <li>• Connect each teen with one of the HTML/CSS tutorials from the first page. They do NOT need to be using the same one – help each participant find the appropriate level of tutorial so they don't get bored or overwhelmed.</li> <li>• Circulate to monitor activity and answer questions. Check in with each teen to see how they're doing.</li> <li>• Work on a related project using the TV (ie, class website)</li> </ul> <p><b>Week 6: One Hour Web Design Competition</b></p> <p><b>Suggested Rules</b></p> <ul style="list-style-type: none"> <li>• Use only HTML &amp; CSS to design the page (text elements &amp; images are fine, but no javascript, bootstrap, etc.).</li> <li>• The focus is on the site design, not the content – for example, they can use filler text instead of trying to write their own descriptions.</li> <li>• Each group will be designing a new site from scratch, on a topic of OUR choosing. (<i>Do a drumroll/big reveal</i> - the topic for today's competition is: CHICKEN SWEATERS (<i>feel free to substitute</i>)).</li> </ul> <p>Give each group 60 minutes to create their site, then they will have to share their work with the whole class. They should each show their site as well as the source code.</p>	<ul style="list-style-type: none"> <li>• Work on tutorials or projects</li> </ul> <p><i>Work time should be a mix of theory and practice – using online tutorials to learn new concepts, and then applying those concepts to build a personal website on Neocities.</i></p> <p><i>If teens would rather start by building a website and learn as they go, that's fine – help each learner figure out what will work best for him or her.</i></p> <p><i>Feel free to change the rules to suit your group, or skip the competition entirely if that's what your teens want.</i></p>

	<p><b>Judging the Competition</b></p> <p>The volunteers should judge each site and pick a winner. The point is for teens to showcase what they have learned, so the code should carry the most weight. Have every volunteer score the sites and then combine the scores, or choose your own method as a group.</p> <p>Suggested criteria:  5 points for overall look/appeal/usability  10 points for good code:</p> <ul style="list-style-type: none"> <li>• 5 for proper use of CSS and HTML5 (ex., using &lt;strong&gt; instead of &lt;b&gt;)</li> <li>• 5 for using alt tags (or other accessibility features)</li> </ul> <p>Subtract points for breaking the rules.</p>	
<b>5 min</b>	<p>Wrap-up</p> <ul style="list-style-type: none"> <li>• Stay for a few minutes to answer any last questions.</li> <li>• Talk to your staff host about how it went and let them know if you have any requests for the next session.</li> </ul>	<ul style="list-style-type: none"> <li>• Finish the section they're working on</li> </ul>

## POST-PROGRAM CHECKLIST

After each session:

- Your staff host will collect the program materials and Volunteer Log-In Sheet.

After the last session:

- Send any feedback about the program to [Carrie.Kitchen@calgarylibrary.ca](mailto:Carrie.Kitchen@calgarylibrary.ca). This is an evolving program and your input is essential to making it work! We especially want to hear what you're doing in your group that's not in this program plan – any new resources, activities, or behaviours that you've added – so that we can try to share the learning with everyone.
- Your Post-Program reflection/notes for other volunteers facilitating this program (*note: Service Design Leads will be collecting this feedback to iterate/inform program design*):
  - What questions did participants ask?
  - Where did they get stuck?
  - What little tweak do you want to try next time?

## ADDITIONAL RESOURCES

### Offline HTML Games

*Instructions and materials for these games should be in your library's blue coding bin.*

- Tag Tag Revolution – use open and close tags to create a ridiculous dance party.
- HTML Tag Hangman – guess the HTML tag, before it's too late.