⁂teachers learning code
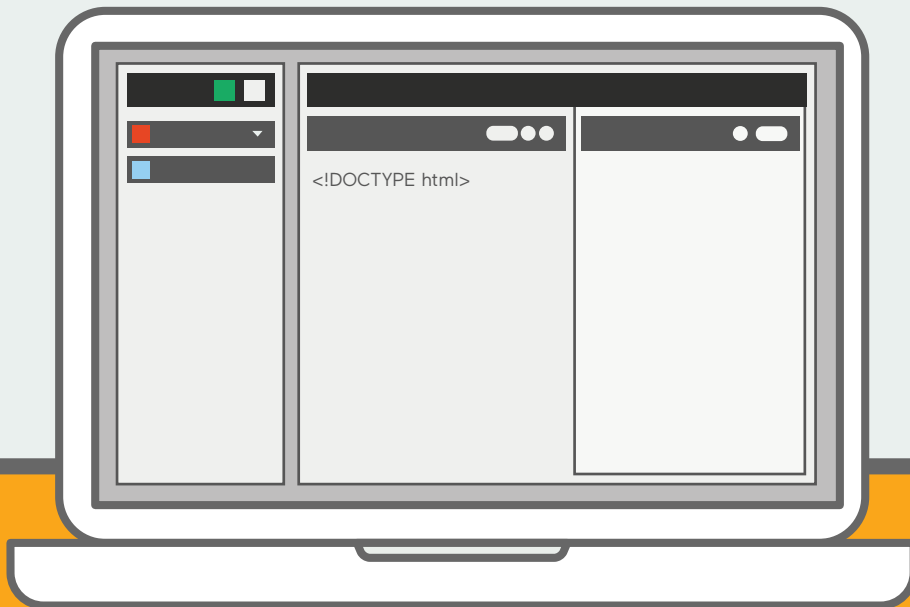
DIGITAL TOOLBOX

Getting Started with Mozilla X-Ray Goggles and Thimble

⁂ An educational program by
CANADA LEARNING CODE

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For more great lesson plans, check out our website: canadalearningcode.ca/lesson-plans

An Introduction to Mozilla X-Ray Goggles

WHAT IS MOZILLA X-RAY GOGGLES?

X-Ray Goggles (https://goggles.mozilla.org) is a web browser tool that allows users to edit any website by making the code that was used to build it visible to them (similar to Developer Tools in Google Chrome). With X-Ray Goggles, we can "hack" a website by first clicking on different elements of the page, changing the text or the code, and creating a temporary version on our own screen! This is extremely useful for introducing beginner coders to web languages, like HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets). HTML and CSS describe the structure (titles, headings, paragraphs, links, etc.) and style of the web page, respectively.

We often recommend introducing code with a block-based language like Scratch, because it eliminates the need to type code or use syntax. In contrast, HTML and CSS do use syntax and can, at times, be frustrating to learners when they forget simple things like a colon, a common, or parentheses. X-Ray Goggles is a great intermediate between Scratch and HTML/CSS because learners can edit any webpage without being required to manipulate the code. During this editing process, they will still gain exposure to bite-sized chunks of HTML and CSS, and will start to learn the purpose of certain tags through pattern recognition. For example, if the learner edits enough titles, they will begin to see that these headings are always wedged between an <h1> and </h1> tag - a header tag!

By permitting a plug-and-play approach to learning, X-Ray Goggles ensures learners will see the impact of their changes immediately and they won't be overwhelmed by the thought of coding a website from scratch. Learners have the world wide web at their fingertips and can start working on projects that are meaningful to them right away, instead of struggling to learn syntax first.
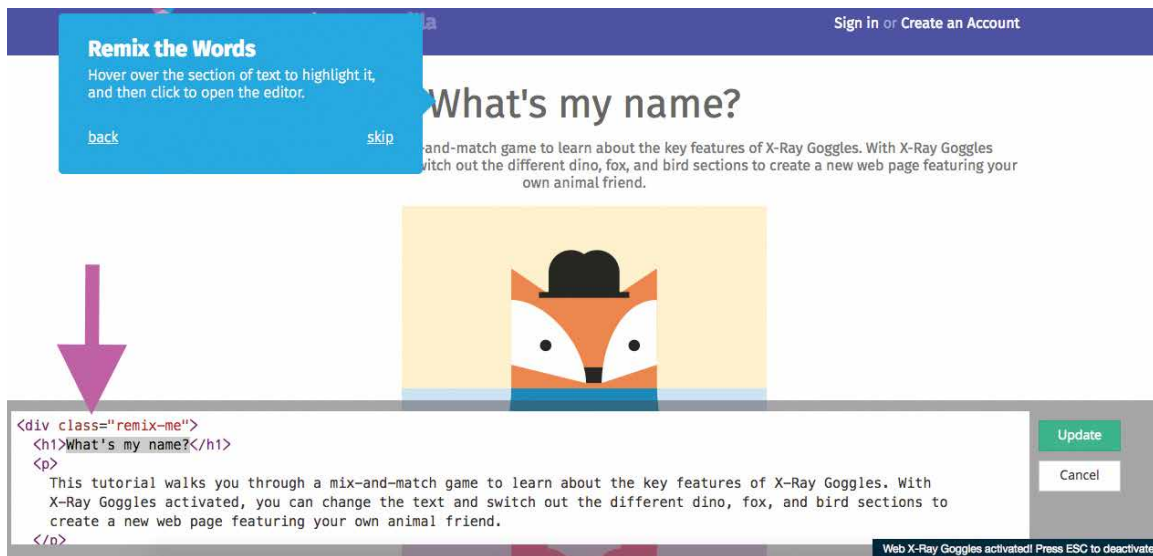
Getting Started

INSTALLING MOZILLA X-RAY GOGGLES AND CREATING AN ACCOUNT

	1. Go to **https://goggles.mozilla.org** 2. Follow the instructions to install the X-Ray Goggles plugin (if it isn't already installed on the computer).
Create an Account	3. Create an account by clicking the 'Create an Account' button in the top right hand corner. We recommend creating one account for each group you code with.

X-RAY GOGGLES BASICS: REMIXING WEBSITES

	1. Start off by visiting any website you'd like to "hack." It can be anything — really! Learners enjoy editing their school websites, but we have also had luck hacking superhero profiles from bit.ly/superhero-profile (see example lesson plan for more details).
X-Ray Goggles	2. Once you've found a website, click on the X-Ray Goggles shortcut in your bookmarks bar to begin!
	3. As you move the mouse around the page, different website elements will be highlighted. Click on an element to reveal the code behind it. (See diagram on next page.) ↘

EXAMPLES: CLICK TO REVEAL AN ELEMENT TO REVEAL CODE

What's my name?

This tutorial walks you through a mix-and-match game to learn about the key features of X-Ray Goggles. With X-Ray Goggles activated, you can change the text and switch out the different dino, fox, and bird sections to create a new web page featuring your own animal friend.

Sign in or Create an Account

Remix the Words

Hover over the section of text to highlight it, and then click to open the editor.

back   skip

What's my name?

and-match game to learn about the key features of X-Ray Goggles. With X-Ray Goggles witch out the different dino, fox, and bird sections to create a new web page featuring your own animal friend.

```
<div class="remix-me">
  <h1>What's my name?</h1>
  <p>
    This tutorial walks you through a mix-and-match game to learn about the key features of X-Ray Goggles. With
    X-Ray Goggles activated, you can change the text and switch out the different dino, fox, and bird sections to
    create a new web page featuring your own animal friend.
  </p>
```

Update

Cancel

Web X-Ray Goggles activated! Press ESC to deactivate.

```
<div class="remix-me">
  <h1>What's my name?</h1>
  <p>
  { This tutorial walks you
    X-Ray Goggles activated
    create a new web page f
  </p>
```

Reading the Code View: Everything in < > brackets is code that will not be seen on the actual website.
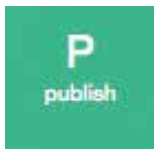
Edit the text in between these bits of code: <p> everything inside of the paragraph tags </p>.

Hit Update' when you are satisfied.

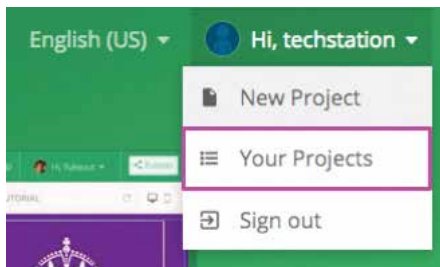# Getting Started

SHARING YOUR PROJECTS

	To save your remixed website, click 'Publish' and log in to your account.

FINDING YOUR PROJECT

|	
	Go to **https://thimble.mozilla.org** and log in to your account using the 'Sign In' button in the top right corner.
	To continue editing a project, select 'Your Projects' under the dropdown in the top right corner. Please note that all projects saved with X-Ray Goggles will be titled 'Untitled', so you will have to scroll through projects to find the right one. While this is certainly manageable for small groups of 5-10 learners, we do not recommend using this feature for larger classes.

X-Ray Goggles

You are unlikely to run into many issues with X-Ray Goggles. It is a very basic tool that is extremely beginner-friendly. The following resources exist for problems that do arise:

I'VE MADE A MISTAKE!

← undo	If learners have made a mistake, simple use the 'Undo' button on the bottom right toolbar.

MY PROJECT LOOKS FUNNY!
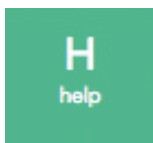
H help	The "Help" button located in the toolbar on the bottom right side of the screen is useful for addressing any questions you might have!

Superhero Profiles

DESCRIPTION

Learn about HTML by 'hacking' the web! Use Mozilla X-Ray Goggles to take a superhero website and make it feature a new 'hero' such as a role model, historical figure, or character from your favourite book.

Grade: 3-5, 6-8

Length: 60 minutes

Subjects: English, Language Arts, Social Studies

Coding Concepts: Sequences

Additional Concepts: Webpage, Hyperlink, HTML, Tag

PREP WORK

- Review our Teachers Learning Code Digital Toolbox for tips and tricks!

- Watch the "Content 101: Mozilla Webmaking Tools" video at **http://bit.ly/content101-videos** to learn how X-Ray Goggles works. (Stop at 03:48)

- If you don't already have one, create an account for your class at **https://thimble.mozilla.org** ("Create an account").

- See the example project at **http://bit.ly/superhero-profiles-shaq** (remix of **http://marvel.com/ characters/60/thor**).

- Print the Solution Sheet for the main activity. Available at **http://bit.ly/superhero-profiles-solution** or 'Printables' section in this guide.

- You will need computers and access to the internet for this session.

The Lesson

First, we need to do some research! Have learners collect information about their chosen book character, historical figure, etc.

For example:

- What are they best known for?

- Where did they grow up? What was their childhood like?

- What obstacle(s) did they have to overcome? How did they do this?

- What is a memorable quote from this person/character?

Review the basic elements of a webpage, or watch the "HTML Basics" video at **https://bit.ly/html-basics-tags**.

✳ CODE ALONG ✳

- Show students the example project: **http://bit.ly/superhero-profiles-shaq** (Created about Shaquille O'Neal, based off his autobiography "Shaq Uncut").

- Guide learners through installing X-Ray Goggles:

  - Go to **https://goggles.mozilla.org**

  - Make sure your bookmark bar is showing (under "View" in top menu).

- Click and drag the pink X-Ray Goggles button into your bookmarks bar.

- Test it out — Scroll down to "Sample Activity Page" > Click on the X-Ray Goggles shortcut in your bookmarks bar to activate.

- Demonstrate how to highlight, edit, and update elements on the webpage.

- Give learners 2 minutes to try to change the heading and paragraph text (Bonus: Try to change an image).

Have learners go to **bit.ly/superhero-profile**, then select a superhero from this list. Use the Solution Sheet to guide learners through the following steps:

Activate X-Ray Goggles

- Change the heading
- Change the paragraph text
- Replace the images

Extensions

- Want Introduce HTML through play! Before this lesson, plan time for learners to play **https://eraseallkittens.com** ("Play Demo"). You may want to create a free account for your class which all students can use to sign in, or have them sign-up using their individual emails.

- Go through a KWL chart with the class (Know, Want to know, Learned). Ask them what they think they know about websites, and what they want to know. After the lesson, regroup and complete the 'learned' column as well.

- Remix a website with more content and options. For example, this Mozilla Thimble Facebook post: **http://thimbleprojects.org/mozillalearning/213492/**

Assessment

Learning Outcomes

I can 'hack' websites by editing HTML tags

I can change the text of websites by editing <h#> and <p> tags

I can replace images using <img> tags

I can have the power to change my experience on the web

Success Criteria

I remixed the superhero profile webpage

I changed the heading to the name of my chosen person/character

I replaced all of the text on the webpage

I answered all of the questions about my chosen person/character using proper spelling, punctuation, and grammar

I replaced at least 2 images with images of my person/character

Assessment Ideas

- Have learners present their websites to the class, or have a Gallery Walk where half of your learners walk around to see other projects, while the other half stay with their computer + website to explain it to others. Switch half way through.

- Guide learners through editing and revising their work using the CUPS strategy (Capitalization, Usage, Punctuation, Spelling) — before submitting their final version.

What is Mozilla Thimble?

WHAT IS MOZILLA THIMBLE?

Mozilla Thimble is a free text-editing tool that can be used to create webpages using coding languages like HTML, CSS, and JavaScript. While Mozilla X-Ray Goggles allows learners to interact with bite-sized portions of HTML at a time, Thimble allows them to view and edit the code for an entire website at once. This makes Thimble a great next step for learners to level-up their webmaking skills.

GETTING STARTED: CREATING AN ACCOUNT

Sign in or Create an account

Mozilla Thimble uses the same account as X-Ray Goggles. If you have already created an account, go to **https://thimble.mozilla.org** and log in using the 'Sign In' button in the top, right corner. Create a new account using the 'Create an Account' button.

### MOZILLA THIMBLE BASICS: REMIXING WEBSITES

https://thimble.mozilla.org

(See diagram on next page) ↘

Start off by remixing existing projects by going to the Mozilla Thimble homepage at **https://thimble.mozilla.org** and scrolling down to the project index, then clicking a green 'Remix' button. Each project has instructions in the form of HTML comments.

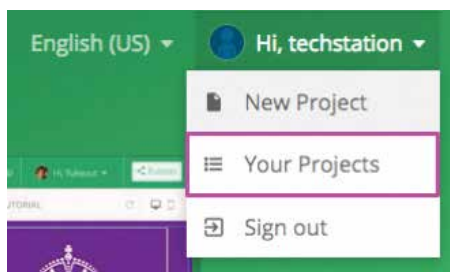# Remixing Websites

---

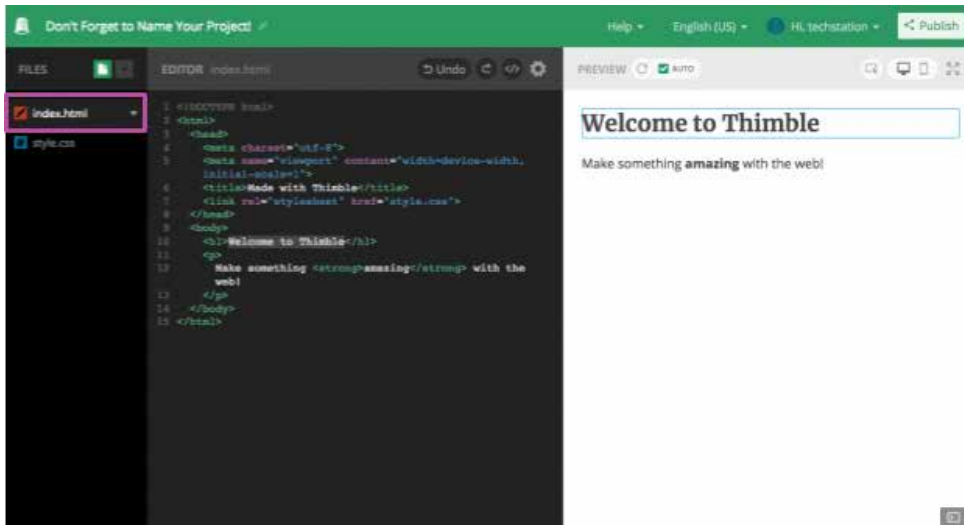## EXAMPLES: REMIXING EXISTING PROJECTS
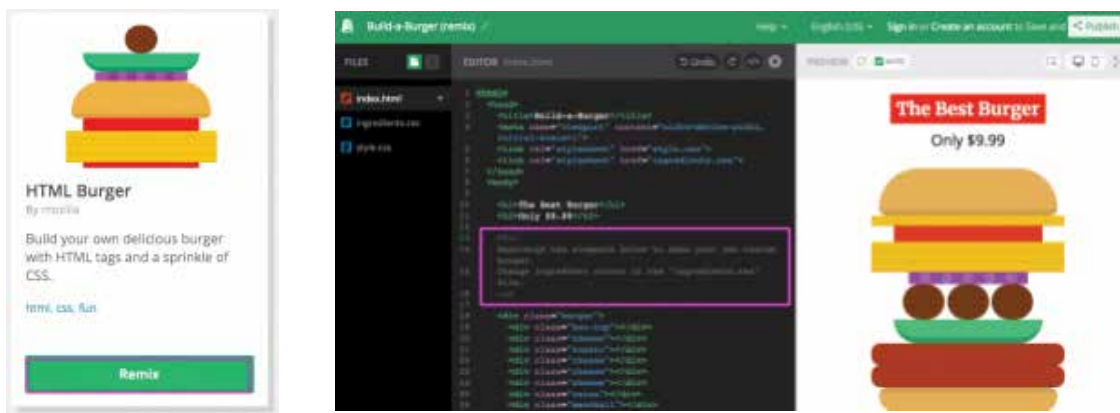
Scroll to the project index, then clicking a green 'Remix' button. Each project has instructions in the form of HTML.

## CREATING A WEBSITE FROM SCRATCH

You can also create your very own website from scratch by selecting 'New Project' in the top, right corner dropdown.


CREATING A WEBSITE FROM SCRATCH

Add content to your site using the index.html tab (see image above). All of the white text is what will be visible on your webpage, and all of the text in <angled brackets> is code that won't be visible on your page, but are instructions that tell the browser what to display. Not familiar with HTML? Check out the W3Schools HTML Reference (see link in Additional Resources section), which lists all of the different instructions that you can add to your site!

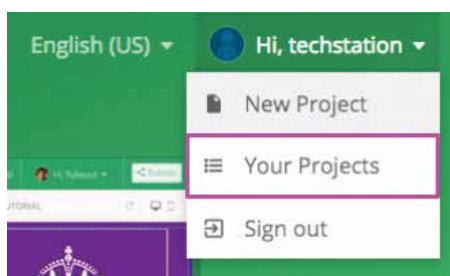Add style to your site using the style.css tab (see image below).
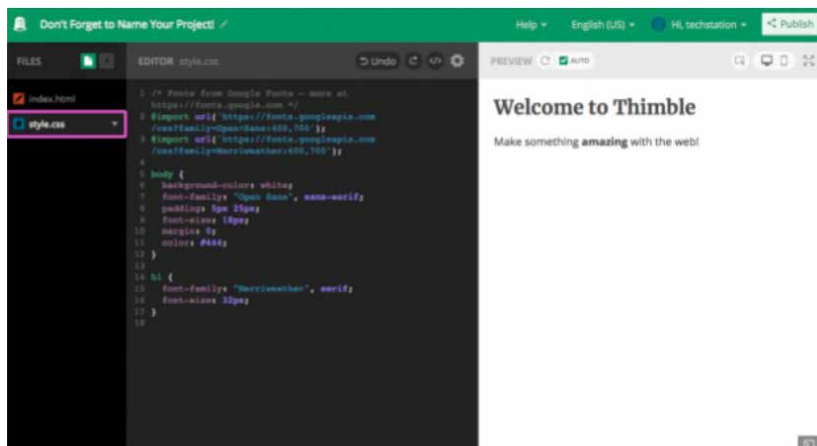
Remixing Websites

## EXAMPLES: REMIXING EXISTING PROJECTS
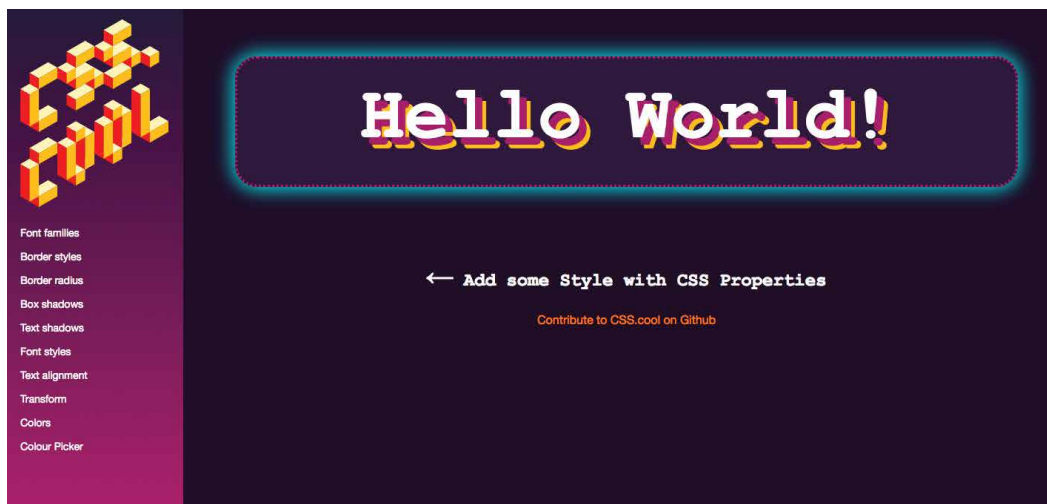
For more ideas on CSS styles, check out css.cool. You can also visit the W3Schools CSS Reference (see link in Additional Resources section) for a complete list of the different styles that you can use.

FINDING YOUR PROJECT

To continue editing a project, select 'Your Projects' under the dropdown in the top, right corner.
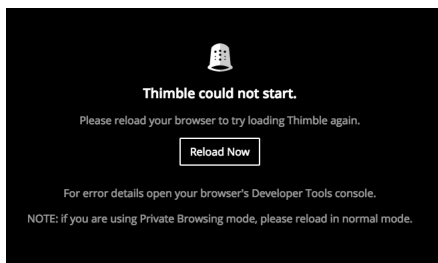
SHARING YOUR PROJECT
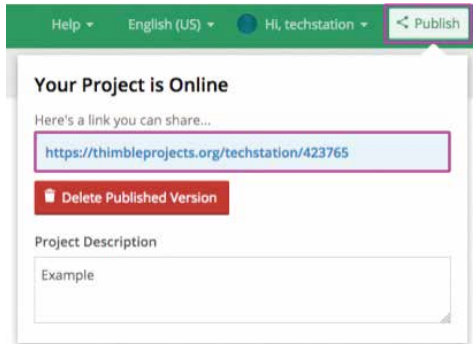
Save your project by changing the name in the top, left corner, then selecting 'Publish.' Once you've published your website, Thimble will provide a URL for you to share with others so that they can view your website online!

Thimble

MY CODE WON'T WORK!

Thimble will notify you of any errors by highlighting the line in pink. Try selecting 'undo.' If the mistake was recent, going back a step should solve the problem.

If that doesn't help, look at the lines above and below the flagged item and check for the following:

1. **Spelling:** Is the element spelled properly? (Remember, it's cAsE sEnSiTiVe)

2. **Tags:** Does each element have an opening and closing tag?

    <p> Like this </p>

3. **Brackets:** Is there an opening and closing bracket?

    < + > for HTML, or { + } for CSS

4. **Colons/Semicolon:** Am I missing any colons or semicolons in my CSS?

    ```
    body {
      like: this;
      and: this;
    }
    ```

Thimble

THIMBLE COULD NOT START

Thimble could not start.

Please reload your browser to try loading Thimble again.

Reload Now

For error details open your browser's Developer Tools console.
NOTE: if you are using Private Browsing mode, please reload in normal mode.

I'm trying to load Thimble, but I keep getting an error screen that says "Thimble could not start."

If you receive an error like the screen to the right, try installing Mozilla Firefox (**https://www. mozilla.org/en-US/firefox/new/**) and opening the webpage in this browser, instead.

LESSON PLAN:

Tourism Website

DESCRIPTION

In this project-based assignment, students will create a tourism website for their respective province or territory (it could be another province, too!). Work with students to review the steps of the project, including forming ideas about their site, gathering knowledge, checking facts, and coding their site.

Grade: 3-5, 6-8

Length: 120 minutes

Subjects: English, Language Arts, Social Studies

Coding Concepts: Additional Concepts: Webpage, Hyperlink, HTML, CSS, Tag

Additional Concepts: Flight, Forces Causing Movement, Transportation Technology, People and Environments

PREP WORK

- Review our Teachers Learning Code Digital Toolbox for tips and tricks!

- Watch the "Content 101: Mozilla Webmaking Tools" video at **http://bit.ly/content101-videos** to learn how Mozilla Thimble works. (Skip to 03:45)

- If you don't already have one, create an account for your class at **https://thimble.mozilla.org** ("Create an account").

- Review the example project at **http://bit.ly/tourism-yukon** (Click "remix" to see inside!)

- Print/scan the Solution Sheet for the main activity. Available at **http://bit.ly/tourism-website-solution** or 'Printables' section in this guide.

- You will need computers and access to the internet for this session.

The Lesson

First, we need to do some research! Have learners choose (or assign) a province or territory and record answers to the following questions:

- What is the province/territory best known for?

- What are the top 5 things to do there?

- Find a photo or video!

Review the basic elements of a webpage, or watch the "HTML Basics" video at **http://bit.ly/html-basics-tags**.

✖ CODE ALONG ✖

- Show students the example project: **http://bit.ly/tourism-yukon** — click "remix" to see inside!

- Pair up learners and assign each pair a tag from the example project (e.g. <head> — anything in angled brackets).

- Instruct pairs that they have 2 minutes to use **https://w3schools.com** to research what their element does, and where it goes on the website.

- Check for understanding by having them either orally present or add their findings to a shared Google Doc.

ACTIVITY: TOURISM ACTIVITY

Have learners open the Starter Project at **http://bit.ly/ tourism-website-starter** and click "REMIX."

Have them sign-in using the class account you created. Use the Solution Sheet to guide learners through the following steps:

- Change the title of the site
- Change the heading
- Create a list
- Embed a video
- Add an image
- Change the styles
- Assessments

Extensions

- Introduce HTML through play! Before this lesson, plan time for learners to play **https://eraseallkittens.com** ("Play Demo"). You may want to create a free account for your class which all students can use to sign in, or have them sign-up using their individual e-mails.

- Go through a KWL chart with the class (Know, Want to know, Learned). Ask them what they think they know about websites, and what they want to know. After the lesson, regroup and complete the 'learned' column as well.

- Add a more extensive research element. Have learners spend more time learning about their province or territory, organized by subtopics.

- Create a multi-page website by adding new html pages inside the Thimble project, then linking the pages together using <a> tags.

Assessment

Learning Outcomes

I can remix websites by editing tags in HTML

I can add text to my website using <h#> and <p> tags

I can add images to my website using <img> tags

I can design my website using CSS

Success Criteria

I renamed my Mozilla Thimble project using my first name

I changed the heading of my webpage to my chosen province/territory

My list has 5 different suggestions for tourists in this area

I embedded a video that is relevant and useful for tourists in this area

I added an image of the province/territory to my webpage

I changed the style of 3 different tags on my webpage using CSS

Assessment Ideas:

- Have learners use <!--Comments--> to explain their code.
- Provide time for learners to present their websites to the class.
- Guide learners through editing and revising their work using the CUPS strategy (Capitalization, Usage, Punctuation, Spelling) — before submitting their final version.

Resources

MOZILLA X-RAY GOGGLES AND SUPERHERO PROFILES LESSON

Superhero Webpage (for remixing): bit.ly/superhero-profile

Mozilla Thimble Facebook Post (for remixing): http://thimbleprojects.org/mozillalearning/213492/

Mozilla X-Ray Goggles: https://goggles.mozilla.org

Superhero Profiles Example Project: http://bit.ly/superhero-profiles-shaq

Superhero Profiles Solution Sheet: http://bit.ly/superhero-profiles-solution

MOZILLA THIMBLE AND TOURISM WEBSITE LESSON

Mozilla Firefox Download: https://www.mozilla.org/en-US/firefox/new/

Mozilla Thimble: https://thimble.mozilla.org

Tourism Website Example Project: http://bit.ly/tourism-yukon

Tourism Website Solution Sheet: http://bit.ly/tourism-website-solution

Tourism Website Starter Project: http://bit.ly/tourism-website-starter

VIDEOS

Content 101 Videos: http://bit.ly/content101-videos

HTML Basics Video: http://bit.ly/html-basics-tags

ADDITIONAL RESOURCES

Css.cool: css.cool

Erase All Kittens Game: https://eraseallkittens.com

Teachers Learning Code Website (for more lesson plans): http://teacherslearningcode.com

W3Schools HTML Reference: https://w3schools.com/tags/ref_byfunc.asp

W3Schools CSS Reference: https://w3schools.com/cssref/

Superhero Profiles

STEP 1: OPENING THE STARTER PROJECT

X-Ray Goggles

1. Go to **bit.ly/superhero-profile**
2. Click on the X-Ray Goggles shortcut in your bookmarks bar to activate the tool and get started!

Solution Sheet created for Canada Learning Code. More info on Mozilla webmaking tools at Mozilla Learning.

STEP 2: CHANGE THE HEADING

1. Hover over the title (name of the superhero) and click to edit.

2. Replace the text in between the <h1> tags with your person/character's name.

3. Click on "Update" to update the page with your changes.
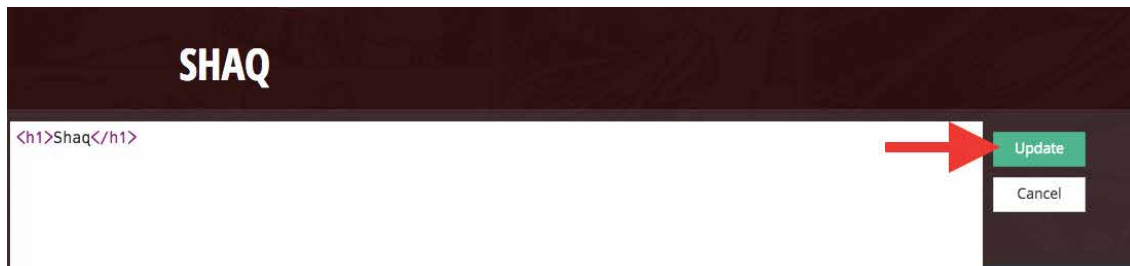
Superhero Profiles

STEP 3: CHANGE THE PARAGRAPH TEXT

1. Hover over the top paragraph and click to edit the <p> or <strong> tags.

2. Change the text in between the <p> tags and click "Update".

3. For each question that learners needed to answer about their person/character, add the question on the left, and the answer on the right.

SHAQ

T'Challa is the king of the secretive and highly advanced African nation of Wakanda as well as the powerful warrior known as the Black Panther. For generations, the people of Wakanda have followed the Black Panther, a superior warrior granted extra abilities upon proving himself worthy. For much of the modern era, T'Challa has worn the mantle of the Black Panther.

| Real Name | T'Challa |
| Place of origin | Wakanda |

| Real Name | T'Challa |
Place of origin	Wakanda
Other Aliases	Luke Charles, Black Leopard, Nubian Prince, The Client, Coal Tiger
Superpowers	Heightened Senses, Night Vision, Hand-to-Hand Combat, Superhuman Strength

STEP 4: REPLACE THE IMAGES

1. Hover over an image and click to edit.

2. Notice that there is a URL inside of the <img> tag. This tells the website where the image is from (its source).

3. Find an image! Use Google Search (try to use creative commons images by filtering under Tools > Usage rights > Labeled for reuse).

4. Right-click on the image > "Copy Image Address." This will link directly to the image, instead of the webpage with the image, plus a bunch of other content.

5. Go back to the website you are 'hacking'.

6. Replace the url inside of the "quotations" of the <img> tag (see below).
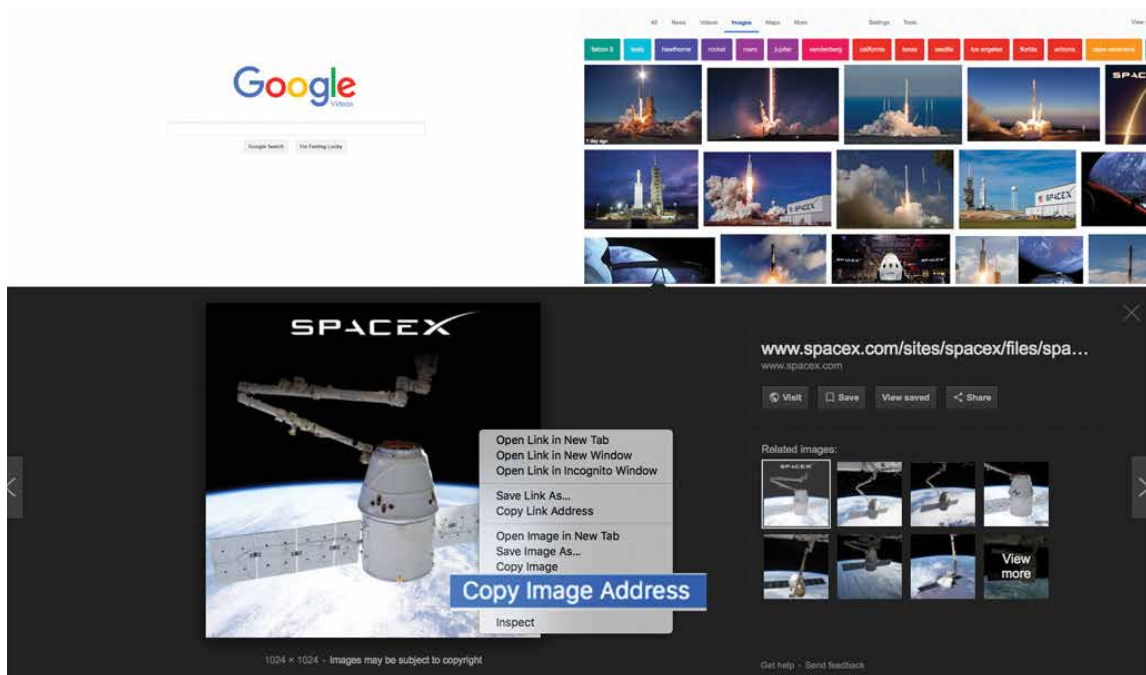
Superhero Profiles
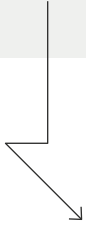
FINISHED? SHARE YOUR WEBSITE!

1. Have learners click on "Publish" and sign in using the class Mozilla Thimble account that you created.

2. Once they sign in, have them select "Publish this remix".

3. A link to their project will be displayed. (This is the link they will need to share with you) Click "Check it out!" to view the completed webpage.

Published!

Your remix was published at
http://thimbleprojects.org/HTTP/klc-camps/504247

Check it out!

4. Have them copy the URL and share it with you online (Twitter, Google Classroom, etc.). It'll be difficult to assess on your own through Mozilla Thimble, as they will all be saved as the same name. Having students share the link with you is definitely recommended!
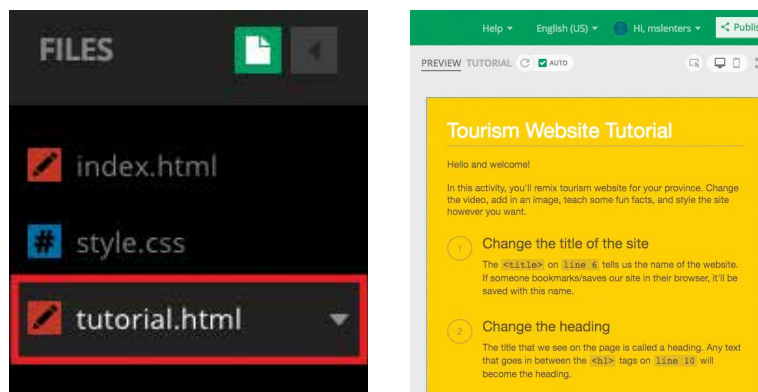
Solution Sheet created for Canada Learning Code. More info on Mozilla webmaking tools at Mozilla Learning.

Tourism Website

STEP 1: REMIXING THE STARTER PROJECT

1. Open the starter project: **bit.ly/tourism-website-starter**

2. Remix the project + sign in (using your class account).

3. Change the project name (top left).
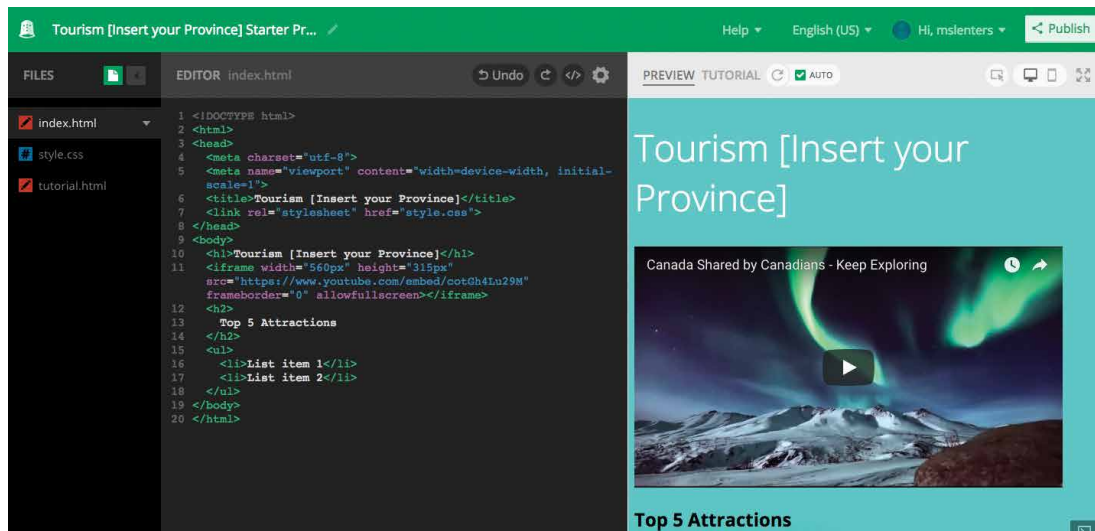
**Show learners where to find the tutorial instructions, under tutorial.html

Solution Sheet created for Canada Learning Code. More info on Mozilla webmaking tools at Mozilla Learning.

Tourism Website

STEP 2: CHANGE THE TITLE OF THE SITE

1. Find the <title> element on line 6.

2. Change the title from "Tourism [Insert your Province]" to include your chosen province or territory.

3. You'll notice that this doesn't change anything on the website (visually). That's because this is is a 'behind-the-scenes' name that is used when users search for our site or bookmark/save it in their browser.

```
6    <title>Tourism [Insert your Province]</title>
```

STEP 3: CHANGE THE HEADING

1. The title that we actually see on the page is called a Heading. Find the <h1> tag on line 10.

2. Replace the text with your chosen province/territory.

```
10    <h1>Tourism [Insert your Province]</h1>
```

Solution Sheet created for Canada Learning Code. More info on Mozilla webmaking tools at Mozilla Learning.

STEP 4: CREATE A LIST

```
15    <ul>
16        <li>List item 1</li>
17        <li>List item 2</li>
18    </ul>
```
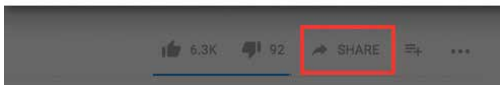
1. Find the list items <li> on lines 16-17.

2. Update them with your chosen tourist attractions.

3. We need at least five! Add more items by creating additional <li> elements within the unordered list.

STEP 5: EMBED A VIDEO

1. First, we need to find a video. Head to youtube.com search for a video that relates to your province or territory.

2. Once you've found the video you want to embed in your site. Click the share button (it looks like a little arrow with share beside it) and choose embed.

3. Copy the embed code.

4. Go back to your Thimble project. Delete the other <iframe> code on line 11 to get rid of the example video.

```
11    <iframe width="560px" height="315px"
       src="https://www.youtube.com/embed/cotGh4Lu29M"
       frameborder="0" allowfullscreen></iframe>
```
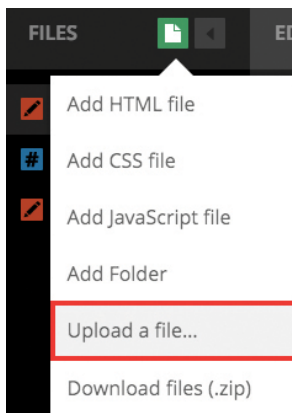
5. Paste the code you just copied into line 11.

Tourism Website

STEP 6: ADD AN IMAGE

1. Go to Google Images and search for an image relating to your topic. Try to find a creative commons image by selecting Tools > Usage rights > Labeled for reuse.

2. Save the image to your computer (right click + Save image as).

3. Go back to Thimble and upload the image into your project. Click on the green page icon in the Files menu > Upload a file.

4. Go back to the **index.html** and create a new image tag using: ****
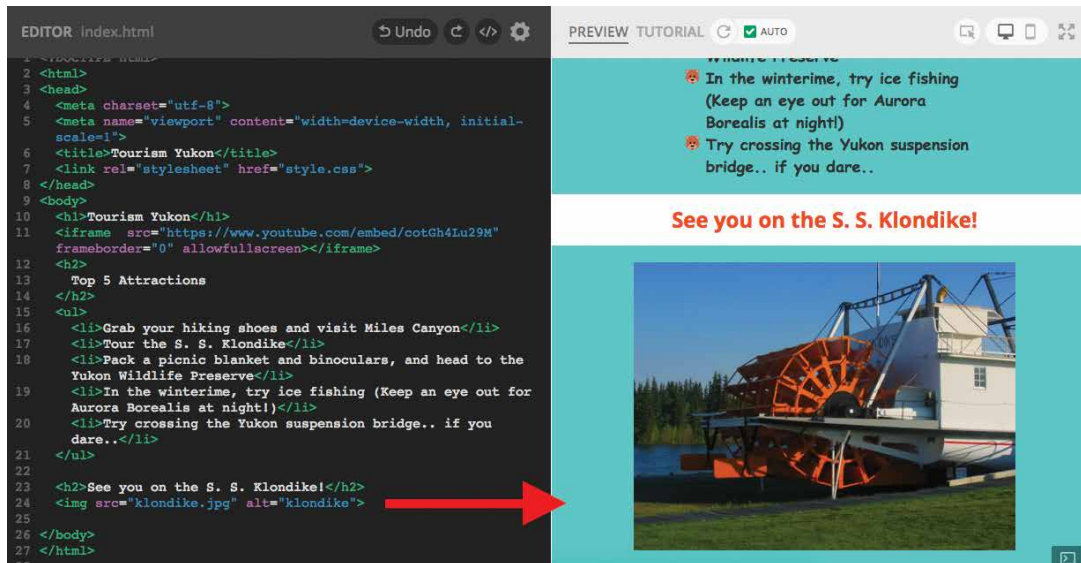
STEP 7: CHANGE THE STYLES

```
1 body {
2    font-family: "Open Sans", sans-serif;
3    background-color: #72ccc9;
```

1. The CSS file is where the styles for the website are kept. Open style.css to see the existing styles. What do you see?

2. Change the background colour by clicking on the hex code on line 3 — then click on the purple icon that pops up. Choose another colour.

```
1 body {
2    font-family: "Open Sans", sans-serif;
3    background-color: #72ccc9;
```

#72ccc9
#ffffff

#72ccc9   RGBa Hex HSLa

3. Let's add some more styles! Have learners go to css.cool to see some more options.

4. Show learners how to click on a style on css.cool (which automatically copies the code for us!) then paste the code into style.css using CTRL+V.

5. Add style to a NEW element by typing the tag name, then pasting the styles inside of curvy.

Font families

font-family: Verdana,Geneva,sans-serif;	The quick brown fox jumps over the lazy dog
font-family: Helvetica,Arial,sans-serif;	The quick brown fox jumps over the lazy dog
font-family: "Lucida Sans Unicode", "Lucida Grande", sans-serif;	The quick brown fox jumps over the lazy dog
font-family: "Trebuchet MS", Helvetica, sans-serif;	The quick brown fox jumps over the lazy dog
font-family: Georgia,Utopia,Charter,serif;	The quick brown fox jumps over the lazy dog
font-family: "Times New Roman",Times,serif;	The quick brown fox jumps over the lazy dog
font-family: "Courier New",Courier,monospace;	The quick brown fox jumps over the lazy dog
font-family: "Palatino Linotype", "Book Antiqua", Palatino, serif;	The quick brown fox jumps over the lazy dog
font-family: "Comic Sans MS", cursive, sans-serif;	The quick brown fox jumps over the lazy dog
font-family: Impact, Charcoal, sans-serif;	The quick brown fox jumps over the lazy dog

Font families
Border styles
Border radius
Box shadows
Text shadows
Font styles
Text alignment
Transform
Colors
Colour Picker

↑ CLICK

```
11 h2 {
12    font-family: Impact, Charcoal, sans-serif;
13 }
```
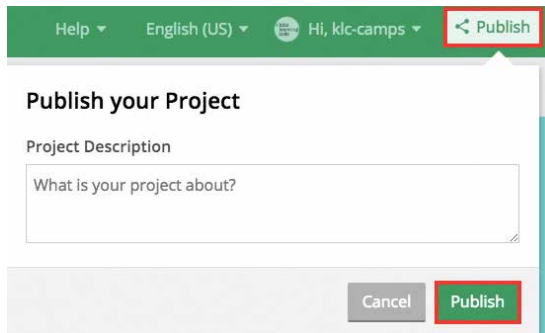
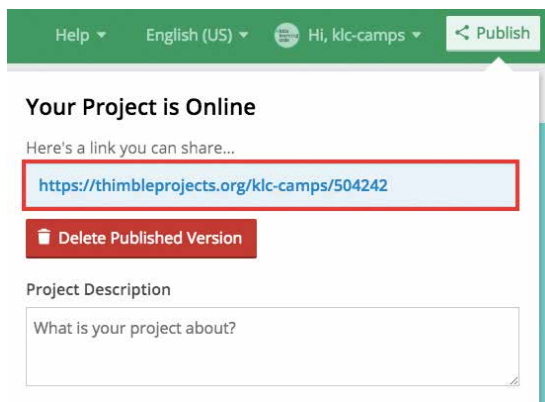**Top 5 Attractions**

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FINISHED? SHARE YOUR WEBSITE!

1. Show learners how to rename their project (top left) with their first names. Have them check with a partner to make sure they both renamed their projects! (If not, it'll be a pain for you later.. Lots of 'Untitled Projects').

2. Have learners click 'Publish' (top right).

3. Have them copy the URL and share it with you online (Twitter, Google Classroom, etc.) or you can go back into Mozilla Thimble > My Projects and assess them through there.

DATE:

DATE:

✳teachers learning code