HTML/CSS Fundamentals

Housekeeping

- Emergency
- Bathrooms
- Breaks
- Leave by a certain time?

Hello!

A bit about me

You?

Experience

- Who has done some HTML before?
- CSS?
- No experience needed 🙂

Overview

- HTML
  How markup works, basic elements, links, images, lists
- CSS
  Anatomy of a CSS rule, specificity, box model

  Types of styling we can apply, display.

  Positioning (time dependent)

  Workflow and debugging
- Build a basic web page

Tools

- Ubuntu
- Folders & files
- Atom (text editor)
- Browser (Firefox, Chrome)
- Online resources

Questions

Please ask!

Getting started + workflow

Getting started — part 1

- **Create a folder** on your desktop, and name it 'project'. We will keep today's work here.
- **Open Atom** and close the introduction tabs.
- **Create a new file** and write your name.
- **Save** the file into the folder we just created. **Name** it *index.html*.

Getting started — part 2

- **In Atom**, there should be a sidebar on the left which contains your project file and folder. If not, go to ***File*** > ***Add Project Folder*** to find and add it.
- **Reduce the size** of your Atom window, so it takes up half of your screen *(windows key + right arrow)*.
- **Open *index.html* with Firefox**. Make it fit the other half of your screen.

Getting started — part 3

- **Yay!** You should see your name on the browser page.
- **Alter the text** in your code editor and save.
- **Navigate to your browser** and reload the page *(F5 key, or click the refesh icon)*.

Pro tip:

In Atom menu, select ***View*** > ***Toggle Soft Wrap***

This helps us view long sentences easily.

⚠ Workflow only! ⚠

Currently, the browser doesn't know how to read our content.

But soon, we will use **HTML** to ***apply meaning*** to our content.

After we've written our HTML, we will use **CSS** to ***describe the presentation*** of our content.

Our set up

Is not crucial, but the half & half view is a good way to get started.

Slides


HTML

HTML:
Hypertext Markup Language

The most basic building block of the web.
It defines the meaning and structure of web content.

filename.html

file-name.html

Hypertext

Links that connect web pages to one another

Within a single website, or between websites

Contact us

Markup Language

We use **markup** to annotate text, images, and other content for display in a web browser.

This markup determines how the computer (and other users!) interpret your content.

Semantic: relating to **meaning** in language or logic.

Imagine you are a computer.

You need to use the following sentence on a webpage:

```
This is a very dangerous liquid.
```

How does the computer know to give ‘very dangerous’ strong importance?

We have to tell it — we mark it up.

```
This is a [start strong importance]very
dangerous[end here please] liquid.
```

This is where the language bit comes in:

```
This is a <strong>very
dangerous</strong> liquid.
```

gives us:

This is a **very dangerous** liquid.

Getting started, again!

```
<!DOCTYPE html>
<html lang="en">

  <head>
    <meta charset="utf-8">
    <title>Browser tab</title>
  </head>

  <body>
    <!-- Content start -->
    A web page by [your name]
    <!-- Content end -->
  </body>

</html>
```

Copy this code into *index.html* (remove old text)

What is happening here?

<!DOCTYPE html>

<html>…</html>

<head>…</head>

<body>…</body>

<!-- comment --> (HTML)

Indentation — reset <head> & <body>

Best practice

- **Indentation** — tabs, spaces
- **Lower case*** — file names, markup

*Note: This may change, depending on your project

Helpers

- **Copy and paste** (and check!)
- **Write tags**, then fill in content
- **Tab complete**
- Use **the docs**

Any others?

Exercise:

Start building a web page!

Learn a bit, then build a bit.

Create an online recipe book

- Home page
- Link to a recipe page

HTML elements:

Head

Contains **machine-readable** information (metadata) about the document.

Not to be confused with <header> or <heading>.

Exercise: Head/title

1. Look at the tab at the top of your browser
2. In your code, you'll see some tags like this: <title> </title>
3. Change the text between these tags to: *My online recipe book*
4. Save your change, refresh your browser, and look at the tab again

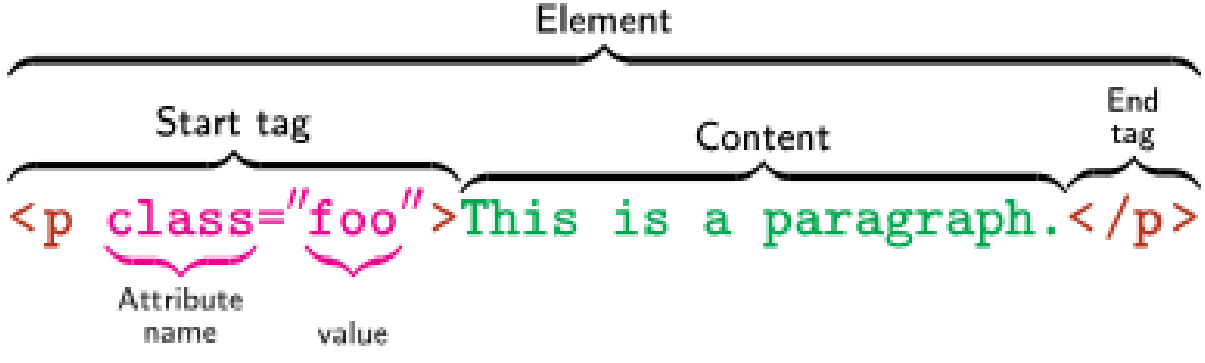
After this, we will mostly be working within the <body> tags.

HTML elements:

Text

- **Headings** — <h1>, <h2>, <h3>, <h4>, <h5>, <h6>
- **Paragraph** — <p>
- **Semantics** — , (different to <b>, <i>)

HTML:
The make up of an element



Note: self-closing tag. More to come on this.

Exercise: Text

```
My online recipe book
A collection of recipes I've collected over the years.
Recipes:
Berry yoghurt ice blocks recipe
A web page by [your name]
```

1. Copy the text above, paste it into the <body> of your project
2. Save your work, and take a look in your browser
3. Go back to your code, and mark up the text
   Hint: Heading, paragraph, heading, paragraph, paragraph
4. Look again!

By default, the browser gives us some sensibile styling

HTML elements:

Images

- Formats / .jpeg (.jpg) / .png / .gif / .svg
- Prepare image with design software
- Change presentation/layout with CSS

```
<img src="cute-cat.png" alt="cute cat plays in grass" />
```

Self-closing tag!

Exercise: Images

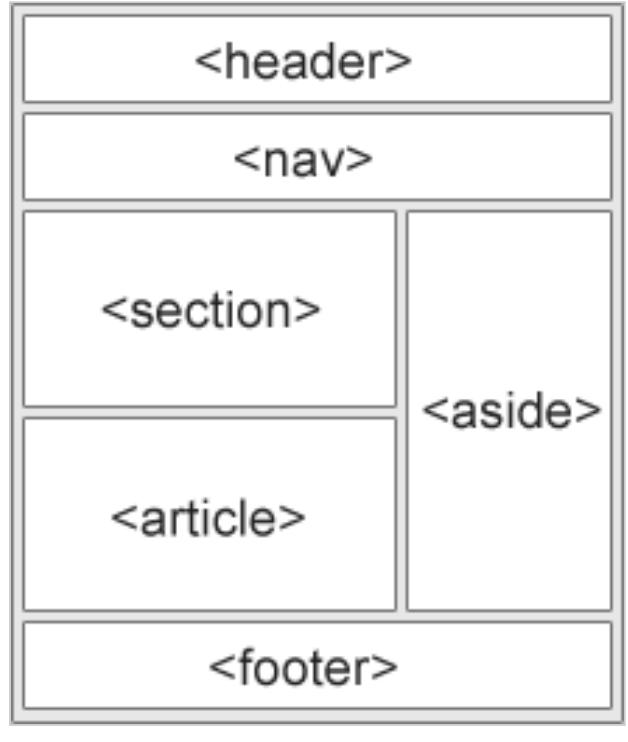
1. Within your 'project' folder, create a folder called 'images'
2. Copy the image above, and save it into your images folder
3. Add the image to your code. Put it before the <h1>

```
<img src="image-name.png" alt="Description of image" />
```

HTML elements:

Parts of a web page

- <header>
- <nav>
- <main> (IE11+)
- <section>, <aside>
- <footer>



Exercise: Parts of a web page

1. Add a <header> element — *tags around the logo*
2. Add a <footer> element — *tags around 'A web page by…'*
3. Add a <main> element — *tags around the rest of the content*

Note: these should be siblings. Think of them as blocks sitting next to each other.

```
<header>
  …
</header>
<main>
  …
</main>
<footer>
  …
</footer>
```

Debugging & inspecting

Modern browsers give us great tools for checking how our code is being interpreted.

Right click on any element, choose **'inspect element'** option, or press **F12** to bring up the developer tools.

Chrome, Firefox, IE (Edge)

HTML elements:
Links

```
<a href="[path-to-file]">This is a link</a>
```

```
<a href="team.html">Our team</a>
```

Our team

```
<a href="team.html#members">Members</a>
```

Will look within **team.html** for an element with an id of "**members**"

HTML elements:

Links

In a sentence:

```
<p>Learn more about <a href="team.html">our team</a></p>
```

Learn more about our team

What does href mean? It comes from Hyperlink REFerence

Exercise: Links

Make the logo a link to the page we are on *(index.html)*

Try in your browser: hover over the image.
The cursor should change, and the href (url) shows at the bottom of your browser.

Make the text 'Berry yoghurt ice blocks' a link to *iceblocks.html*

Note: Keep saving your work, and reloading your browser.

Exercise: A new page!

1. Ensure your file *index.html* is saved
2. Go to *File > Save as*, and name your file *iceblocks.html* (make sure it's at the same level as index.html in the folder structure — a sibling!)
3. Update the title (browser tab)
4. Update the <h1> to *Berry yoghurt ice blocks*
5. Remove everything else inside the <main> tags
6. Have a click around!

HTML elements: Links continued

Email link

```
<a href="mailto:toni@catalyst.net.nz">email Toni</a>
```

External site

```
<a href="https://www.wikipedia.org">Wikipedia website</a>
```

```
<a href="https://www.wikipedia.org"
target="_blank" rel="noopener noreferrer">Wikipedia website</a>
```

Note: target="_blank" opens the link in a new tab.
Adding rel="noopener noreferrer" protects your users against having the site you've linked to potentially hijacking the browser (via rogue JavaScript).

HTML elements:

Ordered list

```
<ol>
  <li>First place</li>
  <li>Second place</li>
  <li>Third place</li>
</ol>
```

1. First place
2. Second place
3. Third place

HTML elements:
Unordered list

```
<ul>
  <li>Oranges</li>
  <li>Lemons</li>
  <li>Plums</li>
</ul>
```

- Oranges
- Lemons
- Plums

Exercise:
Lists, and HTML overview

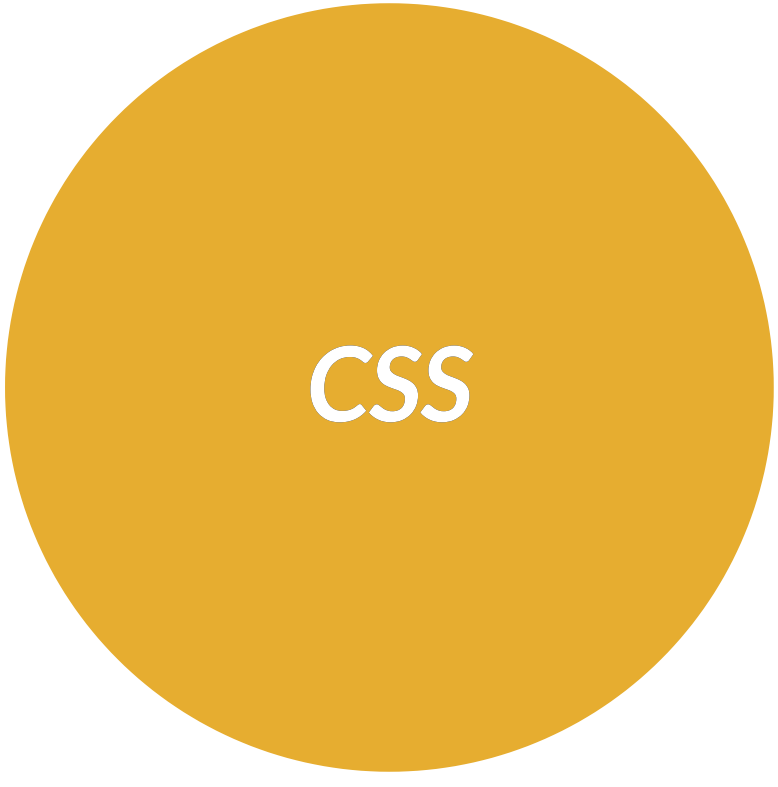
Copy the text below, paste it after your *Berry yoghurt ice blocks* heading

```
These easy-to-make ice blocks are the perfect way to cool down wi

Recipe

Ingredients

125 g fresh or frozen boysenberries
300 ml natural unsweetened yoghurt
```

Use the mark up we've looked at today to assign **meaning** to our additional content.

Exercise: Checklist & extra

1. Add an ice block image
2. Is there anywhere you can add **strong** or *emphasis* tags?
3. Add an external link to wikipedia for *granola*.
4. Have a browse at the Mozilla HTML element documentation


CSS

Cascading Style Sheets (CSS)

A language used for describing the presentation of a document written in a markup language.

filename.css

file-name.css

CSS

We're using it to **Style** the page

It's separate from the HTML (is its own **Sheet**)

It's **Cascading***

*We'll get to this part soon

HTML

Content

CSS

Presentation

Museum of New Zealand Te Papa Tongarewa

Open every day 10am—6pm
(except Christmas Day)

Free entry
Charges apply to some short-term exhibitions and activities

55 Cable Street, Wellington

- Visit Toro mai
  - Plan your visit Whakaritea tō toronga
  - Exhibitions Ngā whakaaturanga
  - Events Ngā kaupapa motuhake
  - Guided tours He haerenga ārahi
  - Book tickets Whakarite tiketi
  - Venues Wahi
- Discover the collections Tūhuratia ngā kohinga
  - Collections Online
  - Blog
  - Read, watch, play Kōrero, mātaki, purei
- Learn Ākona
  - For educators Mā te pouako
  - For museums and galleries Mō ngā muhiama me ngā whare toi
  - Research Rangahau
  - Guides to caring for objects Tiaki Kohinga, Tiaki Taonga
- About Mō Te Papa
  - Contact us Whakapā mai
  - News He pānui
  - What we do Ā mātou mahi
  - The collections Ngā kohinga taonga
  - Repatriation Karanga Aotearoa
  - Touring exhibitions Ngā whakaaturanga poi haere
  - Past exhibitions Ngā whakaaturanga o mua
  - Jobs Tūranga mahi
  - Te Papa Press
  - Press and media Papāho
  - Media sales and licensing Te hohoko papāho me te manatā
  - Our building Tō mātou whare
- Shop Wharehoko
- Support & join Tautokotia, kuhu mai
  - Our membership programme – Friends of Te Papa Te hōtaka mema – Ngā Hoa o Te Papa
  - Te Papa Foundation
  - Corporate partnerships Hononga kaipakihi
  - Support from trusts and foundations Ngā hoa whakawhirinaki ā-pūtea

Search Search

- Facebook
- Twitter
- Instagram
- YouTube

MUSEUM OF
NEW ZEALAND
TE PAPA
TONGAREWA

Open every day 10am—6pm
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55 Cable Street, Wellington

VISIT
Toro mai

DISCOVER THE COLLECTIONS
Tūhuratia ngā kohinga

LEARN
Ākona

ABOUT
Mō Te Papa

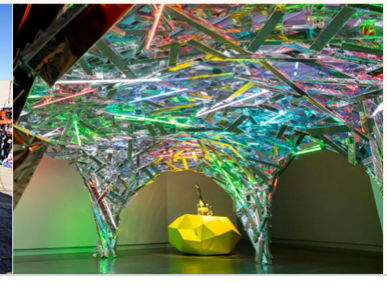
SHOP
Wharehoko

SUPPORT & JOIN
Tautokotia, kuhu mai

Search

Terracotta Warriors: Guardians of Immortality – Tickets now on sale

Get up-close to some of China's ancient imperial icons this summer. Opening Sat 15 Dec.



Working with HTML

HTML

```
<p>Try with blueberries</p>
```

```
<footer>
  <p>Try with blueberries</p>
</footer>
```

CSS

```
p { ... }
```

```
footer { ... }
```

A simple CSS rule

```
p {
  color: green;
  font-weight: bold;
}
```

A simple CSS rule

```
p {                          /* selector */
  color: green;              /* rule */
  font-weight: bold;         /* rule */
}
```

Exercise: Create style sheet

1. Within your 'project' folder, create a new folder called 'css'
2. In Atom, create a new file and name it *styles.css*
3. Save it inside the *css* folder.
4. Add a CSS rule:

```
body {
  background-color: yellow;
}
```

It’s not working!

Exercise: Connect a style sheet

In the <head> (metadata) section of your HTML document:

```
<link href="[filename]" rel="stylesheet">
```

Note: not in the <header>!

Make sure to add it to both of your html files

What can we do with CSS?

All sorts! Here are a few things we can adjust:

- Borders
- Padding
- Margins
- Widths

- Rounded corners
- Opacity
- Font size, weight, color*
- Background color*

*color!

Exercise: Base styles

- **body**
  Remove background-color and margin, change font-family to *'Lato, sans-serif'*, change line-height to *'1.4em'*.
- **<a>**
  Change color to *'#2478bd'*, change the colour when link is hovered over.
- **<header>**
  Set background colour to *'#ffcd03'*, set padding to *'20px 30px'*
- **<main>**
  Set margin-left to *'30px'* and margin-right to *'30px'*
- **<footer>**
  Set background colour to *'#181d23'*, apply padding, make sure you can read the text

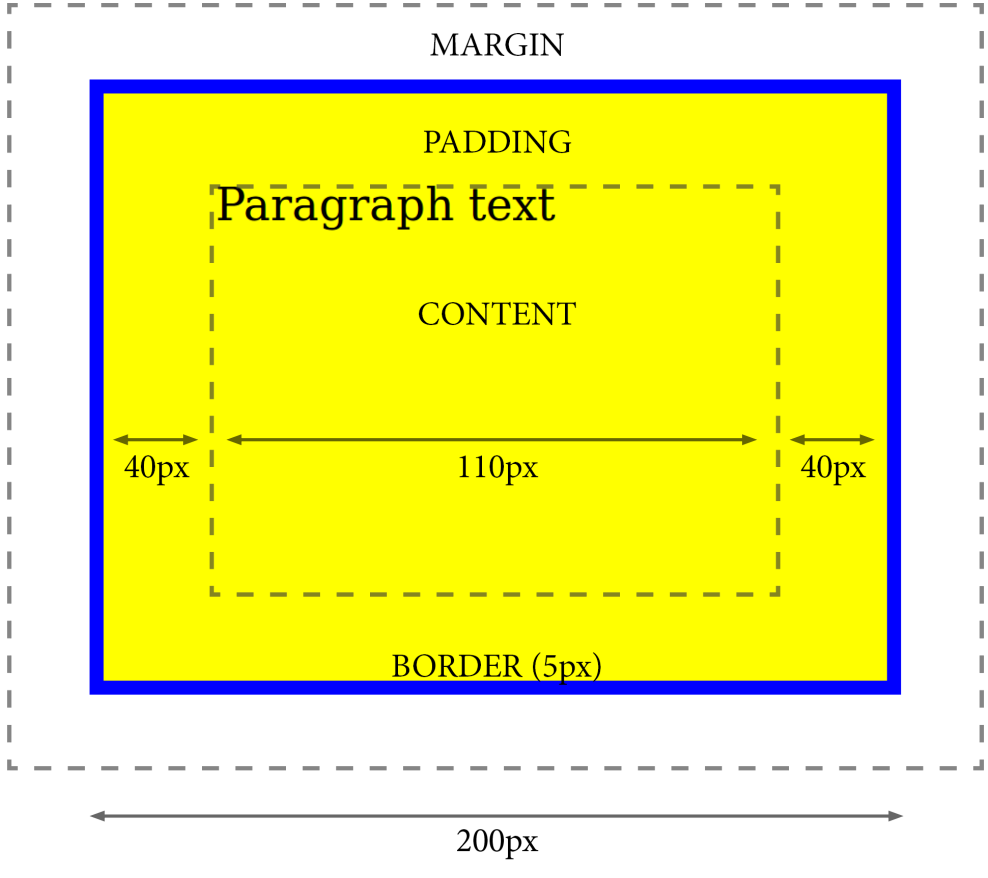
Shorthand options

When declaring sizes, we can:

```
margin-top: 10px;
margin-right: 20px;
margin-bottom: 10px;
margin-left: 20px;

margin: 10px 20px 5px 15px; /* [top] [right] [bottom] [left] */
margin: 10px 20px 5px;      /* [top] [right + left] [bottom] */
margin: 10px 20px;          /* [top + bottom] [right + left] */
margin: 20px;               /* [all values are the same] */
```

Box model


MARGIN
PADDING
Paragraph text
CONTENT
40px
110px
40px
BORDER (5px)
200px

Exercise: Box model

Add the following additional code to your *stylesheet*:

```
header {
  background-color: #ffcd03;
  padding: 20px 30px;
  /* test start */
  width: 300px;
  height: 150px;
  border: 5px solid blue;
  margin: 30px;
  box-sizing: border-box; /* see note*/
  /* test end */
}
```

* Tells browser to account for any border and padding in the values you specify for an element's width and height. This typically makes it much easier to size elements.

Container HTML elements

There are a couple of elements we can use to assist with styling.

- ** **
- ****

These elements have no effect on the content or layout until styled using CSS.

div is a block-level element, **span** is an inline element

Inline, block and inline-block

Note: examples use the same HTML

Display: inline

```
<p>Text with <a href="#">link 1</a> <a href="#">link 2</a> inside</p>
<p>Text without</p>
```

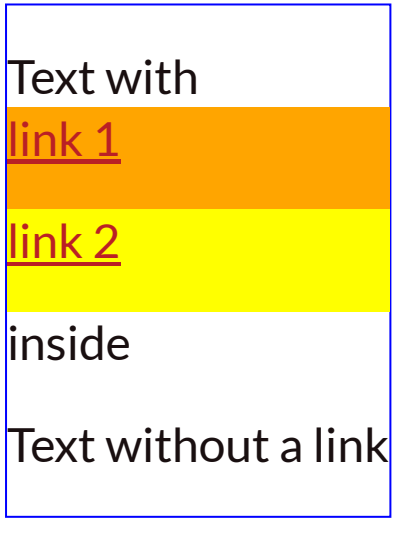
```
a {
  display: inline; /* note: default */
  padding-bottom: 20px;
}
```

Text with link 1 link 2 inside

Text without a link

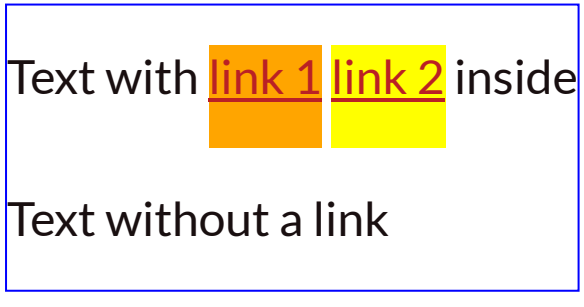
Display: block

```
a {
  display: block; /* change */
  padding-bottom: 20px;
}
```



Display: inline-block

```
a {
  display: inline-block; /* change */
  padding-bottom: 20px;
}
```



Exercise: Display

- In *index.html*, give the link a class of *exercise*
- Add a *display* property to make the link accept the vertical values

More CSS: Floats

We want to 'float' this image so the text reflows around it. We can float things either to the left or the right. We need to be careful though, floated elements don't sit in the page properly any more. Read about 'clearfix' to learn about this.

```
img { float: left; margin: 0 20px 10px 0; }
```

More CSS: Pseudo selectors

```
a:hover          /* link is interacted with, but not clicked */
a:active         /* link is being activated */
a:visited        /* link has been visited */

p:first-child    /* select the first paragraph (child) */
p:last-child     /* select the last paragraph (child) */
```

More CSS: Positioning

```
static  /* default */

relative

absolute

fixed
```

Let’s get more specific

There are different ways of referring to a specific element or elements on the page.

In the HTML use an element’s **id**,
or ideally, give it a **class**.

We can also use a combination of these.

```
<p>Paragraph which needs different styling</p>
<p>Paragraph which is standard</p>
```

```
<p class="intro">Paragraph which needs different styling</p>
<p>Paragraph which is standard</p>
```

Now we can refer to the class name in the CSS

For a class, we use a period:

```
.intro {
  font-size: 20px;
}
```

A class can be used more than once

Using a class

```
<p class="intro">Paragraph which needs different styling</p>
```

To refer to a class, we use a period:

```
.intro {
  font-size: 20px;
}
```

A class can be used more than once

Using an ID

```
<h2 id="elephant-info">Elephant history</h2>
```

To refer to an ID, we use a hash:

```
#elephant-info {
  color: green;
}
```

An ID is unique — it can only be used once.

HTML

```
<p>Text</p>
```

```
<input id="vote">
```

```
<p class="time">Text</p>
```

```
<p class="time new">Text</p>
```

CSS

```
p { ... }
```

```
#vote { ... } /* unique */
```

```
.time { ... } /* resuable */
```

```
.time.new { ... }
```

Inheritance and specificity

The great thing about CSS is that we can stack the selectors.

Let's say we have this HTML:

```
<p>This sentence has the <a href="#">first link</a> in it.</p>

<p class="fact">This one has the <a href="#">second link</a> in it.</p>
```

And we want to make only the second link green

Let’s make a rule for that...

```
.fact a { color: green; }
```

This will only affect 'a' tags that are contained within elements that have the 'fact' class.

What happens if we also have a rule to make all the links blue?

```
a { color: blue; }
```

Most specific wins

The most specific rule will always be applied where possible

But the ordering of CSS rules **is** important

If two (or more) rules are equally specific, the lowest (bottommost) rule wins

- **Class selectors**
  are more specific than element selectors

- **ID selectors**
  are more specific than class selectors

Exercise



- Remove *'exercise'* class from your HTML
- Add ice block image above the ice block link
- Add add two more items: sourdough and pie (image and link)

  Note: the new links won't go anywhere, but you can add these in later

& stacking CSS selectors

Ice block recipe

Sourdough recipe

Pie recipe

- Add a around each item set
- Give the div a class of *'recipe'*, and use CSS to style it (as above)
- Add styles the content of the *.recipe* divs

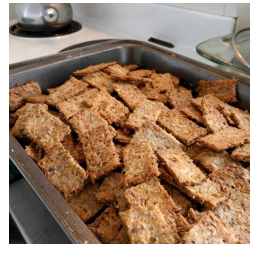
The docs

developer.mozilla.org — CSS syntax/properties/selectors

Extra

- Add additional html pages and links
- Add a description list to a recipe page (Serves, Cook time, etc.)
- Try CSS float, position, and pseudo selectors
- Have a play on CSS Diner





Going forward

- Practice
- Content comes first
- Use docs
- Use browser developer tools (F12)

Codecademy

Online learning

- **HTML**
  https://www.codecademy.com/courses/learn-html
- **CSS**
  https://www.codecademy.com/courses/learn-css

(note: you'll need to create a user account)

Resources

- **HTML elements**
  https://developer.mozilla.org/en-US/docs/Web/HTML/Element
- **CSS syntax/properties/selectors**
  https://developer.mozilla.org/en-US/docs/web/CSS/Reference
- **Browser support**
  http://caniuse.com/
- **Colour contrast checker**
  https://webaim.org/resources/contrastchecker/