

Teddywaddy Code Club

Activity 5a

Einstein

General Relativity

$$G_{\mu\nu} + \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

General relativity, part of the wide-ranging physical theory of relativity formed by the German-born physicist Albert Einstein. It was conceived by Einstein in 1916. General relativity is concerned with gravity, one of the fundamental forces in the universe. Gravity defines macroscopic behaviour, and so general relativity describes large-scale physical phenomena.

Source: [Britannica](#)

<https://trinket.io/html/d5cacf4c72>

Einstein

Create a simple web page (HTML) with some styling (CSS)

Firstly, open the trinket reference shown on the front page (if you haven't already!).

This Trinket has the basics of the web page already included.

Although only simple, this web page will have many of the essential and very common components of modern web pages.

Throughout these exercises students are encouraged to keep looking for more information using the <https://www.w3schools.com/> website and then simply use the search facility.

Einstein

Make the following changes to the web page.

1. Create a proper heading

Use `<h1>` `</h1>` (heading) tags to enclose the heading and move it above the equation.

```
<h1>General Relativity</h1>
```

2. Make the writing into a paragraph

Use `<p>` `</p>` (paragraph) tags to enclose the text.

The code should now look something like this.

```
1 <html>
2 <body>
3
4   <h1>General Relativity</h1>
5
6   
7
8 <p>
9   General relativity, part of the wide-ranging physical theory of
10  relativity formed by the German-born physicist Albert Einstein.
11  It was conceived by Einstein in 1916. General relativity is concerned
12  with gravity, one of the fundamental forces in the universe.
13  Gravity defines macroscopic behaviour, and so general relativity
14  describes large-scale physical phenomena.
15 </p>
16
17   Source: Britannica
18
19 </body>
20 </html>
```

3. Style the heading

Add some styling to the heading by creating a new `<head>` `</head>` section that contains a simple `<style>` `</style>` section.

```
1 <html>
2 <head>
3   | <style>
4   |
5   | </style>
6 </head>
7 <body>
```

The `<style>` `</style>` section is one of the most important parts of a web page and can grow to be quite large.

In general, the `<body>` `</body>` section is where the content goes, and the `<style>` `</style>` section is where you apply formatting to the content. **This is an important point.**

To connect a style to a piece of content there are several methods. The most versatile of these methods is to use the class attribute.

4. Connect to a style

First, apply a class to the content to be styled.

```
<h1 class="heading">General Relativity</h1>
```

Notice that the class attribute is inside the opening h1 tag.

5. Define the style

To define the style (or format), create a matching class selector within the <style> section.

```
3 ▾ <style>
4 ▾   .heading {
5     font-size: 36pt;
6     color: crimson;
7     }
8 </style>
```

Notice that the class name starts with a . – this is to separate it from other types of style selectors (not a class type).

The font-size and color are just two of many styles that can be applied.

Try changing the heading to a different font.

```
3 ▾ <style>
4 ▾   .heading {
5     font-size: 36pt;
6     color: crimson;
7     font-family: arial;
8     }
9 </style>
```

Try also cursive and fantasy as font-family.

Search <https://www.w3schools.com/> for font-family to see more.

6. Create a hyperlink

Make the Britannica reference into a hyperlink as follows.

The `<a>` `` tag is used to create a hyperlink.

Change the Britannica reference.

```
25 |
26 | Source: <a href="https://www.britannica.com/science/general-relativity">Brittanica</a>
27 |
```

Study this line carefully to note that the part on-screen is between the `<a>` and `` and the hyperlink is a `href` attribute inside the `<a>` tag. (Similar to how the `class` attribute was inserted).

Try it out.

7. Centre the whole web page

Finally, we can apply another very common technique using `<div>` and `</div>` to group certain content together and then apply a style to everything between the `<div>` and `</div>` tags.

Place the `<div>` and `</div>` so they enclose all the content.

```
15 <body>
16 |
17 <div class="container">
18 |   <h1 class="heading">General Relativity</h1>
19 |
20 |   
21 |
22 <p>
23 |   General relativity, part of the wide-ranging physical theory of
24 |   relativity formed by the German-born physicist Albert Einstein.
25 |   It was conceived by Einstein in 1916. General relativity is concerned
26 |   with gravity, one of the fundamental forces in the universe.
27 |   Gravity defines macroscopic behaviour, and so general relativity
28 |   describes large-scale physical phenomena.
29 | </p>
30 |
31 |   Source: <a href="https://www.britannica.com/science/general-relativity">Brittanica</a>
32 | </div>
33 |
34 </body>
```

Now define the .container style to make the centre happen. This style sets a maximum width for the page of 650 pixels and has margin equal on both sides, so it ends up in the centre.

Also place a border around the web page. Try other border color, style and width.

```
3  <style>
4  .container {
5      width: 650px;
6      margin: auto;
7      border-color: blue;
8      border-style: solid;
9      border-width: 3px;
10 }
11 .heading {
12     font-size: 36pt;
13     color: crimson;
14     font-family: Arial, Helvetica, sans-serif;
15 }
16 </style>
```

If the image of the equation is too large it can be adjusted using a style like that shown below. Don't forget to apply the class to the tag as well.

```
16 .equation {
17     width: 400px;
18 }
```

Extension:

Find a picture of Einstein and add to the page.