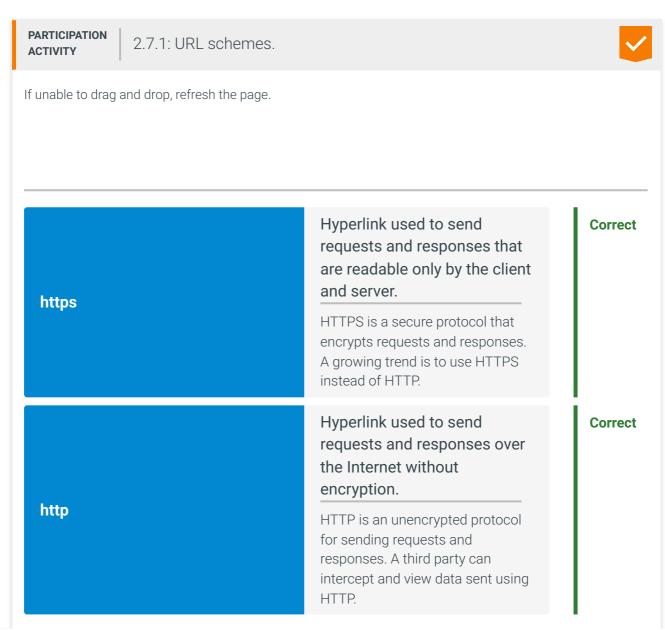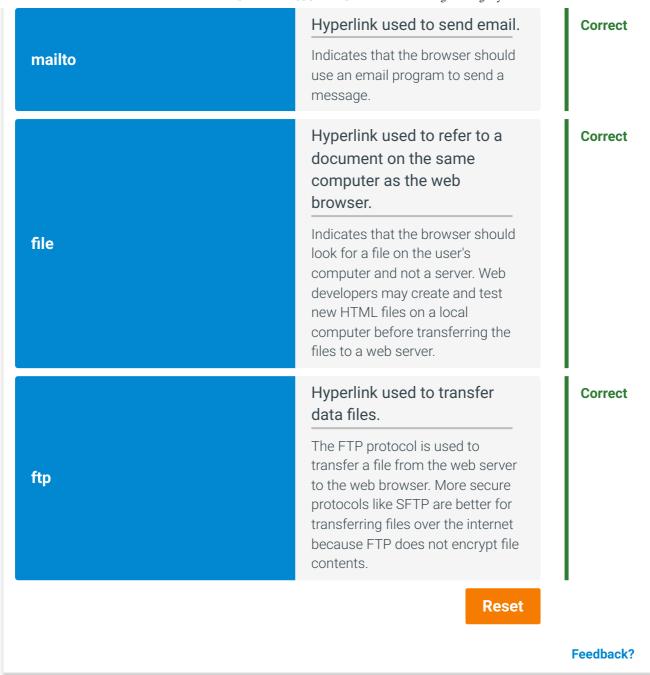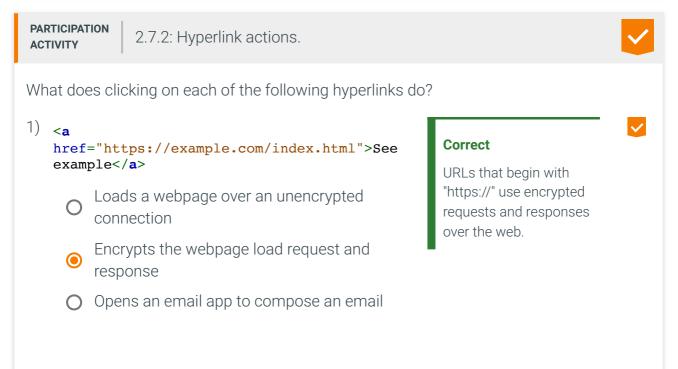# 2.7 Links

Anchor tag

The **anchor tag <a>** defines a hyperlink in a webpage. A **hyperlink**, or link, specifies where other information is located and what action the web browser should perform when a user clicks the hyperlink. A hyperlink action may tell the web browser to go to another webpage, to go to a location in the same webpage, to download a file, or to send an email.

A hyperlink has three parts: the opening `<a>` tag with the `href` attribute, the content displayed for the link , and the closing `</a>` tag. The **href attribute** specifies the hyperlink's URL. Ex: `<a href="https://wikipedia.org/">Wikipedia</a>` displays the hyperlink [Wikipedia](https://wikipedia.org/) and causes the browser to request the URL https://wikipedia.org/ when the hyperlink is clicked. Other URL schemes may cause the browser to take different actions. Ex: The URL mailto:mary@gmail.com uses the `mailto` scheme that directs the browser to start an email program and address an email to mary@gmail.com.

PARTICIPATION ACTIVITY	2.7.1: URL schemes.	✅

If unable to drag and drop, refresh the page.

---

https	Hyperlink used to send requests and responses that are readable only by the client and server.	**Correct**
	HTTPS is a secure protocol that encrypts requests and responses. A growing trend is to use HTTPS instead of HTTP.	
http	Hyperlink used to send requests and responses over the Internet without encryption.	**Correct**
	HTTP is an unencrypted protocol for sending requests and responses. A third party can intercept and view data sent using HTTP.	

mailto	**Hyperlink used to send email.** Indicates that the browser should use an email program to send a message.	**Correct**
file	**Hyperlink used to refer to a document on the same computer as the web browser.** Indicates that the browser should look for a file on the user's computer and not a server. Web developers may create and test new HTML files on a local computer before transferring the files to a web server.	**Correct**
ftp	**Hyperlink used to transfer data files.** The FTP protocol is used to transfer a file from the web server to the web browser. More secure protocols like SFTP are better for transferring files over the internet because FTP does not encrypt file contents.	**Correct**

Reset

Feedback?

PARTICIPATION ACTIVITY	2.7.2: Hyperlink actions.	✔

What does clicking on each of the following hyperlinks do?

1)
```html
<a href="https://example.com/index.html">See example</a>
```

- ○ Loads a webpage over an unencrypted connection
- ◉ Encrypts the webpage load request and response
- ○ Opens an email app to compose an email

Correct

URLs that begin with "https://" use encrypted requests and responses over the web.

2)
```
<a href="mailto:person@example.com">Get in touch</a>
```

○ Loads a page over an unencrypted connection

◉ Opens an email app to compose an email

○ Downloads a file

Correct

The URL causes the browser to open an email program to compose a message to person@example.com.

3)
```
<a href="http://example.com/index.html">See example</a>
```

◉ Loads a page over an unencrypted connection

○ Encrypts the page load request and response

○ Opens a file

Correct

URLs that begin with "http://" use unencrypted requests and responses over the web.

4)
```
<a href="ftp://example.com/index.html">Raw data</a>
```

○ Loads a page over an unencrypted connection

○ Opens a file from the user's computer

◉ Downloads a file

Correct

URLs that begin with "ftp://" use the FTP protocol to download a data file over the internet.

5)
```
<a href="file:///C:/example/index.html">See example</a>
```

○ Loads a page over an unencrypted connection

◉ Opens a file from the user's computer

○ Downloads a file

Correct

URLs that begin with "file:///" open a file located on the user's computer. Links with file schemes are uncommon because files are usually expected to reside on web servers.

Feedback?

PARTICIPATION ACTIVITY   2.7.3: Create a hyperlink to a webpage.

The following HTML shows a paragraph with a URL. Try turning the URL into an HTTPS hyperlink to example.com.

```
1  <p>Link to https://example.com/</p>
```

Render webpage   Reset code

Your webpage   **Expected webpage**

| Link to https://example.com/ | Link to https://example.com/ |

▼ View solution

                                                    ⊱⊰ Explain

--- START FILE: HTML ---

<p>Link to <a
href="https://example.com/">https://example.com/</p>

--- END FILE: HTML ---

Absolute and relative URLs

When a webpage links to web resources on the same website, a relative URL may be specified in the `href` attribute instead of an absolute URL.

- An **absolute URL** is a complete URL. Ex:
  `<a href="http://example.com/test.html">test</a>` is a hyperlink using the absolute URL http://example.com/test.html.

- A **relative URL** specifies the relative path to the web resource with no scheme or hostname. Ex: `<a href="test.html">test</a>` uses the relative URL test.html to refer to an HTML document on the same website and with the same path as the current HTML document.

A relative URL may use two periods followed by a forward slash (`../`) in front of a filename to indicate the file is one directory above the current HTML document. Ex: The relative URL `../test.html` indicates test.html is in the directory above the HTML document containing the link.

PARTICIPATION ACTIVITY	2.7.4: Using relative URLs to link to files on the same website.	✔

Start ☐ 2x speed

```
mywebsite
├── index.html
├── family.html
└── hobbies
    ├── football.html
    └── geocaching.html
```

```html
<!-- index.html -->

<p>
    <a href="family.html">My family</a>
</p>

<p>My hobbies:
    <a href="hobbies/football.html">Football</a> and
    <a href="hobbies/geocaching.html">Geocaching</a>
</p>
```

```html
<!-- football.html -->

<p>See my
    <a href="geocaching.html">Geocaching page</a>
</p>

<p>
    <a href="../index.html">Go to my home page</a>
</p>
```

Captions ⌃

1. A website is organized into 4 HTML files. football.html and geocaching.html are located in the hobbies directory.
2. index.html contains a hyperlink with a relative URL to family.html since family.html is on the same website as index.html.

3. Hyperlinks to football.html and geocaching.html use relative URLs that start with "hobbies/" because both files are in the hobbies directory.
4. football.html uses a relative URL to link to geocaching.html, which is in the same directory as football.html.
5. football.html uses ".." in the relative URL to link to index.html, because ".." refers to the directory that is one level up from football.html, the mywebsite directory.

Feedback?

PARTICIPATION ACTIVITY   2.7.5: Relative URLs.   ✓

Refer to the animation above.

1) In which file would the hyperlink below be expected?

```
<a href="index.html">Home page</a>
```

- ⦿ family.html
- ○ football.html
- ○ geocaching.html

Correct

The filename index.html is the complete relative URL because index.html is in the same directory as family.html.

2) In which file would the hyperlink below be expected?

```
<a href="../family.html">Family</a>
```

- ○ index.html
- ○ family.html
- ⦿ geocaching.html

Correct

geocaching.html is in the hobbies directory. The "../" references the directory that is one level up from hobbies, which is the mywebsite directory where family.html is located. football.html could also use the same link to family.html.

3) Assume a directory called "junk" is located in the hobbies directory. What relative URL would index.html use to link to a file called stuff.html in the junk directory?

- ○ stuff.html
- ○ junk/stuff.html
- ⦿ hobbies/junk/stuff.html

Correct

The hobbies directory is in the same directory as index.html, the junk directory is in hobbies, and stuff.html is in junk.

4) Assume a directory called "junk" is located in the hobbies directory, and the junk directory contains the file stuff.html. What relative URL would stuff.html use to link to index.html?

Correct

The "../../" moves up two levels from junk to mywebsite, which contains index.html.

- ○ index.html
- ○ ../index.html
- ◉ ../../index.html

Feedback?

Section links

A URL can point to a section, or **fragment**, of a document by adding a hash tag (#) and a fragment identifier at the end of the URL. Ex: `https://en.wikipedia.org/wiki/Computer_science#History` refers to the "History" section of the "Computer_science" page on Wikipedia.

Adding the **id attribute** to any HTML tag creates a **fragment identifier**, permitting URLs to link directly to the id's location in the document. Several rules exist for an id value:

- May be composed of any characters except whitespace characters. Ex: "history 123" is invalid because of the space.
- Cannot start with a number. Ex: "3section" is invalid.
- Is case sensitive. Ex: "History" and "history" are different ids.
- Must be unique in the document. Ex: Two elements both using "history" is invalid.

Good practice is to choose id values that start with a letter and are composed of only letters, digits, dashes (-), and underscores (_). Ex: "history123-late".

The HTML in the figure below creates two section links to the `<section>` tags with fragment identifiers "Ch1" and "Ch2".

Figure 2.7.1: Section links to two <section> tags.

```html
<h1>Pride and Prejudice</h1>

<p>
   Links to chapters:
   <a href="#Ch1">Chapter 1</a>
   <a href="#Ch2">Chapter 2</a>
</p>

<section id="Ch1">
   <h2>Chapter One</h2>

   <p>
      It is a truth universally acknowledged, that a single man in
possession of a good
      fortune, must be in want of a wife.
   </p>
   <p>
      However little known the feelings or views of such a man may be
on his first entering
      a neighbourhood, this truth is so well fixed in the minds of
the surrounding families,
      that he is considered the rightful property of some one or
other of their daughters.
   </p>

   ...
</section>

<section id="Ch2">
   <h2>Chapter Two</h2>

   <p>
      Mr. Bennet was among the earliest of those who waited on Mr.
Bingley...
   </p>

   ...
</section>
```

Feedback?

PARTICIPATION ACTIVITY   2.7.6: Create a hyperlink to a webpage fragment.

The following HTML contains a hyperlink to the Wikipedia page about Abraham Lincoln. Try adding a document fragment identifier to the hyperlink to point to information on Abraham Lincoln's legacy, which is in the section named "Legacy". Each Wikipedia section has a unique fragment identifier to which a hyperlink can link. Note that the only way to discern whether the hyperlink is correct requires clicking the hyperlink to examine where the hyperlink leads.

```
1  <p>
2     Link to <a href="https://en.wikipedia.org/wiki/Abraham_Lincoln
3     information on Abraham Lincoln's legacy</a>.
4  </p>
```

Render webpage   Reset code

Your webpage   **Expected webpage**

Link to information on Abraham Lincoln's   Link to information on Abraham Lincoln's
legacy.   legacy.

▼ View solution

>·< Explain

```
--- START FILE: html ---


<p>
   Link to <a
href="https://en.wikipedia.org/wiki/Abraham_Lincoln#Legacy">
   information on Abraham Lincoln's legacy</a>.
</p>
```

```
--- END FILE: html ---
```

Feedback?

| PARTICIPATION ACTIVITY | 2.7.7: Section links. | ✓ |

1) Which URL links to the "Governance" section of Wikipedia's Internet article?

- ○ https://en.wikipedia.org/wiki/Internet
- ○ https://en.wikipedia.org/wiki/Internet/Governance
- ◉ https://en.wikipedia.org/wiki/Internet#Governance

Correct

The fragment identifier "Governance" must follow the # character at the end of the URL.

2) What is the paragraph's fragment identifier?

```
<p id="location">
   Two blocks
north of 2nd
street.
</p>
```

- ○ Location
- ◉ location
- ○ #location

Correct

The id attribute creates a fragment identifier.

3) Which id is valid for the first paragraph?

```
<p id="_____">
   845-555-3944
</p>
<p id="phone-
work">
   845-222-4956
</p>
```

- ○ phone-work
- ○ phone home
- ◉ phone-home

Correct

The id phone-home is composed of letters and a dash, which are valid id characters. Since ids should be unique, no other element in the document should use the same id.

Feedback?

Image links and targets

The content in a hyperlink may be any valid HTML or text. A ***graphical hyperlink*** or image link uses an image inside a hyperlink instead of text. Ex: The HTML below uses an image of a dog that links to the American Kennel Club.

Figure 2.7.2: Graphical hyperlink: An image used within a hyperlink.

```
<a href="http://www.akc.org/"><img src="dog.jpg" alt="Link to AKC
using an image of a dog."></a>
```


Feedback?

An anchor tag's ***target attribute*** indicates how the browser should display the link when clicked.

- The `_self` attribute value is the default and indicates the browser will open the link in the same tab or window.
- The `_blank` attribute value indicates the browser will open the link in a new tab or window.

Figure 2.7.3: Target attribute: browser will open the link in a new tab.

```
This link to the <a href="https://en.wikipedia.org/wiki/Main_Page"
target="_blank">Wikipedia main page</a>
will open in a new tab or window.
```

Feedback?

PARTICIPATION ACTIVITY　2.7.8: Graphical hyperlinks and the target attribute.

1) Hyperlinks can only contain text.

Correct

○ True

● False

Placing an image in the hyperlink creates a graphical hyperlink.

2) The target attribute can be used on image links.

● True

○ False

Correct

Both textual and image links can use the target attribute.

3) The default value for the target attribute is _self.

● True

○ False

Correct

By default when a hyperlink is clicked, the web browser will open the hyperlink in the same tab or window.

4) The web browser will always create a new window for hyperlinks whose target attribute is _blank.

○ True

● False

Correct

The browser can open the link in a new tab or window. Many modern browsers will open the link in a new tab instead of opening a new window.

Feedback?

PARTICIPATION ACTIVITY

2.7.9: Hyperlink review.

Determine if the following are valid or invalid hyperlinks.

1) ```See example```

○ Valid

● Invalid

Correct

The `href` attribute URL should include a scheme, such as https, when the URL includes a hostname.

2) ```History```

● Valid

○ Invalid

Correct

The #History fragment identifier specifies the History section of

the index.html page.

3)
```
<a href="#History">History</a>
```
   ⦿ Valid
   ○ Invalid

Correct

An href with only the fragment identifier #History links to the History section of the current page.

4)
```
<a href="course.html#Notes">Notes</a>
```
   ⦿ Valid
   ○ Invalid

Correct

The fragment identifier #Notes links to the Notes section of course.html, which is located in the same path.

5)
```
<a href="https://example.org/index.html">
<img src="https://example.org/picture.jpg" alt="Picture of cat"></a>
```
   ⦿ Valid
   ○ Invalid

Correct

The content displayed for a hyperlink may be any valid HTML or text, including images.

6)
```
<a href="caleb@gmail.com">email me</a>
```
   ○ Valid
   ⦿ Invalid

Correct

The email link is missing the `mailto` scheme. Ex: `<a href="mailto:caleb@gmail.com">`

Feedback?

| CHALLENGE ACTIVITY | 2.7.1: Links. | ✓ |

530096.4000608.qx3zqy7

Start

1

2

3

Add a link to https://en.wikipedia.org/wiki/Netherlands. The link contents should be: Click here   **SHOW EXPECTED**

```
1
2 <!-- Your solution goes here -->
3
```

1	2	3

Check   Next

View your last submission ⌄

Feedback?

Exploring further:

- [HTML Links](#) from W3schools

How was this section?   👍 | 👎   **Provide section feedback**