



Unit Overview

Target year group: Year 9

Projected Duration: 8 double-lessons

This scheme of work is designed to give learners an introduction to the main languages involved in web development. Learners will begin by gaining an understanding of the hardware and protocols involved with networking before developing their own websites using HTML, CSS and JavaScript.

Relevant Prior Knowledge

Learners may be familiar with the basic use of HTML and CSS from the Web Awareness topic in year 7.

New Language for Learning

- | | |
|------------|-----------------------|
| ↘ Hub | ↘ TCP/IP |
| ↘ Switch | ↘ Client-server model |
| ↘ Router | ↘ HTML |
| ↘ Protocol | ↘ CSS |
| ↘ SMTP | ↘ JavaScript |
| ↘ IMAP | ↘ Tags |
| ↘ POP | ↘ Form |
| ↘ FTP | ↘ Validation |

Resources

- ✓ Teacher's PowerPoint

Homework

Analysis of three different websites, identifying and explaining:

- ✓ Ideas you would like to incorporate in your own site.
- ✓ Design & layout
- ✓ Multimedia features
- ✓ Interactive features

Cross-Curricular Links

Literacy:

- ↘ Written explanations of hardware and protocols involved in networking.
- ↘ Written analysis of three existing websites.
- ↘ Evaluation of own website created.

Assessment

Assessment is based on the [Progression Pathways Assessment Framework](#) from Computing at School.

Pathway: Communication & Networks

- | | |
|----------------|--|
| Level 5 | <ul style="list-style-type: none"> ✓ Understands how to construct static web pages using HTML and CSS. |
| Level 6 | <ul style="list-style-type: none"> ✓ Knows the names of hardware and protocols associated with networking computer systems. |

Pathway: Information Technology

- | | |
|----------------|---|
| Level 5 | <ul style="list-style-type: none"> ✓ Designs criteria to critically evaluate the quality of solutions. ✓ Uses the criteria to identify improvements and make appropriate refinements to the solution. |
| Level 6 | <ul style="list-style-type: none"> ✓ Designs criteria for users to evaluate the quality of solutions. ✓ Uses the feedback from the users to identify improvements and can make appropriate refinements to the solution. |

Support and Extension

Less able learners should be able to access most lessons although the rate of progress may be slower than that of other learners. Teachers may exceed the projected duration if they feel this would be more suitable for the classes they are teaching and provide examples to assist with written tasks. Teachers may wish to omit lesson 7 (validation) with less able learners.

A range of extension activities have been embedded into a number of the lessons to enable **more able learners** to be pushed within their skills and knowledge. More able learners should be frequently encouraged to find and incorporate additional features in their websites using w3schools to help.

Lesson 1

Activities:

- ↘ Introduce learning objective.
- ↘ Explain and discuss the hardware and protocols required for accessing networks and The Internet.
- ↘ Learners should research the different protocols and provide a definition of each from techterms.com.
- ↘ Explain how the client-server model works.
- ↘ Learners write the answers to the questions on today's learning into a Word document.
- ↘ **Plenary:** Go through the answers to the questions as a class.

Extension:

- ★ Learners should create a labelled diagram to explain how the client-server model works.

Lesson 2

Activities:

- ↘ Introduce learning objective.
- ↘ Explain what HTML and CSS are used for in relation to web design.
- ↘ Learners should create the basic structure for their web page using HTML.
- ↘ Discuss the potential topic for websites to be developed.
- ↘ Learners should add the relevant HTML to add some content to their first web page.
- ↘ Explain the structure of CSS.
- ↘ Learners add a CSS document to set the colours to be used in their web site.
- ↘ Set homework project.

Extension:

- ★ Add a picture and hyperlink using HTML. Change the font using Google fonts and CSS.

Lesson 3

Activities:

- ↘ Introduce learning objective.
- ↘ Explain how <div> tags are used to create specific areas of HTML and how this can be formatted with CSS.
- ↘ Learners add the relevant <div> tags and CSS to format a separate area of their webpage.
- ↘ Learners should continue adding relevant content to their web page.

Extension:

- ★ Use w3schools.com to independently add a suitable border to the <div> box.

Lesson 4

Activities:

- ↘ Introduce learning objective.
- ↘ Explain and demonstrate how to add a new page to the website.
- ↘ Learners should add at least one other relevant information page along with a blank 'form' page to use later.
- ↘ **Plenary:** Learners should swap computers with the person next to them and use a sticky note to give feedback on the website in the form of WWW and EBI.

Learning Objective:

Understand the hardware components required for networking computers and recognise the protocols required for communication.

Learning Outcomes:

- ✓ GOOD: Identify and explain each of the hardware components, bullet points to explain each protocol.
- ✓ BETTER: Clear description of each networking protocol.
- ✓ BEST: Labelled diagram of the client-server model.

Learning Objective:

Know how to use the basic structures of HTML and CSS.

Learning Outcomes(over two lessons):

- ✓ GOOD: Webpage set up with some basic content set using HTML and colours set using CSS.
- ✓ BETTER: Picture and hyperlink added to web page.
- ✓ BEST: Own fonts selected using CSS with Google Fonts.

Learning Objective:

Recognise how to style different areas of HTML using <div> tags.

Learning Outcomes:

- ✓ GOOD: Separate section of web page created using <div> tags.
- ✓ BETTER: Apply different formatting to the <div> box to make it stand out from the rest of the page.
- ✓ BEST: Independently add a border to the box using w3schools.com to help.

Learning Objective:

Know how to add additional pages to a website.

Learning Outcomes:

- ✓ GOOD: One extra page of information created along with a blank 'form' page.
- ✓ BETTER: Additional extra page of information added to the site.
- ✓ BEST: All extra pages have a range of content and demonstrate a variety of HTML features.

Lesson 5

Activities:

- ↘ Introduce learning objective.
- ↘ Explain how to use lists to organise a group of hyperlinks on a page.
- ↘ Learners create a list of links to the other pages in their site.
- ↘ Explain and demonstrate how to make the list look better using CSS.
- ↘ Learners add the relevant CSS to make their list of links look like a navigation bar.
- ↘ Learners should continue developing all of their pages and add their navigation bar to each page.

Learning Objective:

Understand how pages are linked together and recognise how to make a navigation bar more visibly appealing with CSS.

Learning Outcomes:

- ✓ GOOD: A list of hyperlinks leading to the additional pages in the site.
- ✓ BETTER: Change the appearance of the list using CSS so it appears as a horizontal bar.
- ✓ BEST: Apply suitable CSS formatting to create a visually appealing navigation bar.

Lesson 6

Activities:

- ↘ Introduce learning objective.
- ↘ Explain how to structure a user input form using HTML.
- ↘ Learners develop their own input form on their 'sign-up' page.
- ↘ Learners should continue developing the rest of their website once the input form is complete.

Learning Objective:

Understand what is meant by a 'form' and be able to use appropriate HTML tags to add this to a website.

Learning Outcomes:

- ✓ GOOD: Basic form added for users to enter information.
- ✓ BETTER: Form page matches the same style as the rest of the website.
- ✓ BEST: Form is laid out in a way that looks presentable and suitable for the audience.

Lesson 7

Activities:

- ↘ Introduce learning objective.
- ↘ Explain what JavaScript is used for and explain what the term validation means.
- ↘ Learners set up a new JavaScript document and attach this to their form page.
- ↘ Explain the different types of validation and introduce how JavaScript can be used to apply presence check validation.
- ↘ Learners should add JavaScript to apply a presence check to their form.
- ↘ Introduce validation for checking the length and range of data.
- ↘ Learners should add JavaScript to their form page to check the length and range of data entered.

Learning Objective:

Understand how JavaScript is structured and be able to apply basic JavaScript validation to a web form.

Learning Outcomes:

- ✓ GOOD: Add JavaScript to apply a presence check for each input box in the form.
- ✓ BETTER: Add JavaScript to check the length of the phone number.
- ✓ BEST: Add JavaScript to check the range for the age.

Lesson 8

Activities:

- ↘ Introduce learning objective.
- ↘ Explain how a test table works and how it can be used to test the websites.
- ↘ Learners create a test table and use this to test all areas of their websites.
- ↘ Explain what is meant by 'Success Criteria', discuss sensible criteria that apply to the websites created.
- ↘ Learners should write a detailed evaluation of their website.

Learning Objective:

Understand how to thoroughly test a website and be able to use this structure to inform a detailed evaluation.

Learning Outcomes:

- ✓ GOOD: Complete a test table and basic evaluation of the website.
- ✓ BETTER: Detailed test table covering all areas of the site, success criteria devised and website evaluated against this.
- ✓ BEST: Improvements made to website and fully documented within the evaluation.