



Unit Overview

Target year group: Year 7

Projected Duration: 8 lessons

This scheme of work will give learners an understanding of the fundamentals of the World Wide Web. Through a series of eight lessons learners will learn how the Web works, how to be safe and responsible online, gain an understanding of ethical issues surrounding the use of the Web and also look at security risks and how they can be prevented. The scheme of work finishes with students creating their own basic web pages using a combination of HTML and CSS.

Relevant Prior Knowledge

Learners will be familiar with the use of the Internet but will probably not have an in-depth understanding of how this works.

New Language for Learning

- | | |
|--------------------|--------------|
| ↘ Packet Switching | ↘ Phishing |
| ↘ Firewall | ↘ Virus |
| ↘ Hacker | ↘ Spyware |
| ↘ Web Crawler | ↘ Adware |
| ↘ Netiquette | ↘ Encryption |
| ↘ Copyright | ↘ HTML |
| ↘ Spam | ↘ CSS |

Resources

- ✓ Teacher's PowerPoint
- ✓ Lesson 1 - Packet Switching cut-outs
- ✓ Homework worksheet

Homework

An investigation into Cloud Computing and who owns your data.

Cross-Curricular Links

Literacy:

- ↘ Writing a fictional story about a child that runs into problems after meeting someone online.
- ↘ Writing a formal letter to the local MP to argue for or against a Government proposal – learners must demonstrate the use of PEE within this.
- ↘ Script-writing for a debate.

Ethics:

- ↘ Learners will address ethical issues surrounding the use of online data.

Assessment

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

Pathway: Communication & Networks

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|----------------|--|
| Level 3 | <ul style="list-style-type: none"> ✓ Understand the difference between the World Wide Web and the Internet. ✓ Can use Internet services. ✓ Knows how to be responsible online (good netiquette). |
| Level 4 | <ul style="list-style-type: none"> ✓ Knows how search results are selected. ✓ Selects, combines and uses Internet services. ✓ Knows how to report concerns. |
| Level 5 | <ul style="list-style-type: none"> ✓ Understands how search engines rank results. ✓ Can construct static web pages using HTML and CSS. ✓ Recognises ethical issues surrounding IT beyond school. ✓ Understands data transmission in a network. |

Support and Extension

Less able learners should still be able to access all 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.

A range of extension activities have been embedded into each lesson to enable **more able learners** to be pushed within their skills and knowledge. Teachers may wish to spend longer on the web design lessons in order give high ability groups a more thorough understanding and possibly introduce some basic JavaScript where appropriate.

Lesson 1

Activities:

- ↘ Introduce learning objective, outcomes and keywords.
- ↘ Explain, briefly, the process of Packet Switching and have the learners act out this process using the cut-out resources provided.
- ↘ Explain (using animation in Teacher's PowerPoint) how search engines index and display information.
- ↘ Learners research and put together a list of the top five search techniques for finding information online, they should use PEE when addressing each point.
- ↘ **Plenary:** Quick questions on topics covered in the lesson (learners may provide written answers or answer as part of a class discussion).

Extension:

- ↘ Learners should draw a diagram to demonstrate how search engines work.

Lesson 2

Activities:

- ↘ Introduce learning objective, outcomes and keywords.
- ↘ Question learners on their own use of the Internet and identify and go through various risks.
- ↘ Show Internet safety video.
- ↘ Recap on the points to remember, how to be safe and responsible.
- ↘ Learners should gather information to create a video aimed at primary school children to tell them how to be safe and responsible users of the World Wide Web.
- ↘ Learners may begin putting the information together using Movie Maker this lesson (this will continue and be completed next lesson).

Lesson 3

Activities:

- ↘ Recap on the learning objective, outcomes and keywords from last lesson.
- ↘ Recap on the points to remember, how to be safe and responsible.
- ↘ Learners should have finished gathering their information for their video last lesson.
- ↘ Learners should put the information together using Movie Maker to produce a suitable video for primary school children to tell them how to be safe and responsible online.
- ↘ **Plenary:** Quick questions on topics covered in the last two lessons (learners may provide written answers or answer as part of a class discussion).

Extension:

- ★ Learners should write a fictional story about a child their age that runs into problems after meeting someone online.

Lesson 4

Activities:

- ↘ Introduce learning objective, outcomes and keywords.
- ↘ Discuss privacy online and whether it's significant that authorities can track what we do.
- ↘ Show video on the Great Firewall of China and discuss opinions following this.
- ↘ Show learners the *fictional* Government proposal about introducing a similar system to China in the UK.
- ↘ Learners should write a formal business letter to their local MP to either support or oppose the above proposal. It would be appropriate to demonstrate how a formal business letter should look.
- ↘ **Plenary:** Quick questions on topics covered in the lesson (learners may provide written answers or answer as part of a class discussion).

Extension:

- ★ Learners should write a script for a debate between two people with opposite views on the Government's proposal.

Learning Objective:

Understand how data travels around the Internet and recognise how search engines find web pages and how to perform effective searches.

Learning Outcomes:

- ✓ GOOD: Take part in a demonstration of how packet switching works and identify some effective Internet search techniques.
- ✓ BETTER: Research and fully explain a list of five effective search techniques.
- ✓ BEST: Draw a diagram to demonstrate how search engines work.

Learning Objective:

Understand how to keep yourself safe online and be a responsible Internet user.

Learning Outcomes(over two lessons):

- ✓ GOOD: Collect information about being safe and responsible online and compile together to make a simple video.
- ✓ BETTER: Completed video that gives a clear message to the selected audience about being safe and responsible online.
- ✓ BEST: Write a fictional story about a child who runs into problems online.

Learning Objective:

Understand how to keep yourself safe online and be a responsible Internet user.

Learning Outcomes:

- ✓ GOOD: Collect information about being safe and responsible online and compile together to make a simple video.
- ✓ BETTER: Completed video that gives a clear message to the selected audience about being safe and responsible online.
- ✓ BEST: A fictional story about a child who runs into problems online.

Learning Objective:

Be able to understand the ethical issues surrounding using data online and restricting Internet access.

Learning Outcomes:

- ✓ GOOD: Basic letter, correctly laid out, explaining whether they are for or against the proposal.
- ✓ BETTER: Clear and concisely written letter using PEE.
- ✓ BEST: Script for a debate between two people with opposite views on the proposal.

Lesson 5

Activities:

- ↳ Introduce learning objective, outcomes and keywords.
- ↳ Discuss and question students on what is meant by Spam, Phishing and Viruses.
- ↳ Go through what needs to be included in a Security Risks Leaflet and demonstrate how to create a leaflet using a template in Publisher.
- ↳ Learners should create a leaflet to explain email threats and viruses (using the outside pages only). This will be completed next lesson.
- ↳ **Plenary:** Quick questions on topics covered in the lesson (learners may provide written answers or answer as part of a class discussion).

Extension:

- ★ Learners should research the terms 'Pharming' and 'Key Logger' and add explanations of these to their leaflet.

Lesson 6

Activities:

- ↳ Introduce learning objective, outcomes and keywords.
- ↳ Discuss and question students on how to set a secure password and the importance of this. Go through the importance of antivirus software and firewalls.
- ↳ Go through what needs to be included on the inside pages of the Security Risks Leaflet.
- ↳ Learners should add to their leaflet from last lesson to explain ways to protect against the online security risks (using the inside pages).
- ↳ **Plenary:** Quick questions on topics covered in the lesson (learners may provide written answers or answer as part of a class discussion).

Extension:

- ★ Learners should research and explain what is meant by 'Secure Payment Systems' and how to check a site is secure when entering card details.

Lesson 7

Activities:

- ↳ Introduce learning objective, outcomes and keywords.
- ↳ Discuss and explain what HTML is used for and how it is constructed.
- ↳ Demonstrate how to access Notepad++ and create a folder and index page.
- ↳ Go through HTML code to be added to the document.
- ↳ Learners should copy the example to add a suitable title, heading and paragraph and experiment with different types of headings.
- ↳ **Plenary:** Quick questions on topics covered in the lesson (learners may provide written answers or answer as part of a class discussion).

Extension:

- ★ Learners should decide on a topic for their web page and find out how to add a picture and hyperlink as well as some relevant information.

Lesson 8

Activities:

- ↳ Introduce learning objective, outcomes and keywords.
- ↳ Discuss and explain what CSS is used for and how it is constructed.
- ↳ Learners copy and tweak the example to add colours to their web page.
- ↳ Introduce the use of <div> tags to create different sections on the web page.
- ↳ Learners copy the example on how to use and customise the <div> section then tweak this to suit their own design.
- ↳ Learners should use W3 Schools to work out how to give the section a border.
- ↳ **Plenary:** Quick questions on topics covered in the lesson (learners may provide written answers or answer as part of a class discussion).

Extension:

- ★ Learners should investigate and independently use Google Fonts to apply a suitable font to their web page.

Learning Objective:

Understand what is meant by the terms Spam, Phishing and Viruses.

Learning Outcomes:

- ✓ GOOD: Some basic information given about online security risks in the form of a leaflet.
- ✓ BETTER: Detailed explanation of each of the main three security risks with clear examples.
- ✓ BEST: Identify and explain a further two security risks online.

Learning Objective:

Understand the main methods to protect against online security threats and be able to recognise the characteristics of a secure password.

Learning Outcomes:

- ✓ GOOD: Identify and explain how to set a secure password.
- ✓ BETTER: Identify and explain the functionality of antivirus software and firewalls and why they should be used.
- ✓ BEST: Identify and explain the use of secure payment systems online.

Learning Objective:

Understand how HTML is laid out and which components are required to make a simple webpage.

Learning Outcomes:

- ✓ GOOD: Construct a simple web page using HTML tags.
- ✓ BETTER: Select and use a suitable heading type and add some basic information in a paragraph.
- ✓ BEST: Add a range of appropriate information and an image to the page.

Learning Objective:

Understand how CSS works with HTML to change the appearance of a web page.

Learning Outcomes:

- ✓ GOOD: Change the colours of the page background and text using CSS.
- ✓ BETTER: Use <div> tags to define and style separate areas of the page and experiment and apply different border styles to CSS boxes.
- ✓ BEST: Apply a font using Google Fonts.