

Task 1: Know your URLs (Q & A)

1. What do you call the piece of software that is used to display web pages?

A web browser (e.g., Chrome, Firefox, Edge).

2. How many parts does a URL have?

A URL has three main parts: Protocol Domain name Path

3. Which part of the URL is the file name for the web page?

The Path

4. Which part of the URL shows the rules the website uses for transmitting data?

The Protocol (e.g., http, https)

5. What is domain name?

A domain name is the name of the web server that you type into a web browser's address bar to find the website. Each website has a unique domain name. It is often known as the website address.

6. Describe what is meant by URL.

The proper name for a website address is a uniform resource locator, or URL for short. When you want to look at a web page, you open a web browser (software that displays web pages on your computer) and type a URL into the address bar.

7. The following URL is typed in:

http://www.cie.org.uk/ComputerSciencePapers

This URL is composed of three parts. State the part of this URL that is the:

Path: /ComputerSciencePapers

Protocol: https://

Domain name: www.cie.org.uk

8. A student enters the uniform resource locator (URL) for a web page into their tablet computer on a certain piece of software. Identify the name of the software he uses.

The software is called a: Web browser Examples: Google Chrome, Mozilla Firefox, Safari, Microsoft Edge

Task 2: DNS Servers (Q & A)

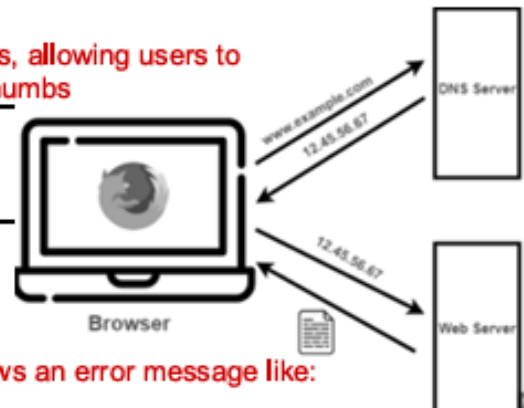
1. What is stored on a DNS?

A DNS stores domain names and their matching IP addresses, allowing users to access websites using easy-to-remember names instead of numbers.

2. Which software sends a request to the DNS?

The web browser (like Chrome, Firefox, or Safari) sends a request to the DNS when you enter a website address.

3. What happens when the domain name cannot be found on any DNS?



If the domain name cannot be found on any DNS, the browser shows an error message like: "DNS server not found" or "This site can't be reached."

This means the DNS could not match the domain name to an IP address, so the website cannot be loaded.

4. Ahmed wants to create a website for his school project. He buys a domain name, **www.schoolproject.com**. He shares the website link with his friends.

a) Explain why Ahmed needs to register a domain name.

Ahmed needs to register a domain name to give his website a unique and easy-to-remember address on the internet. Without a domain name, users would need to use the website's IP address to access it. Registering **www.schoolproject.com** makes it easier for his friends to find and visit his website.

b) What happens in the background when his friends type the domain name in their browser?

1. The browser checks whether the IP address is already stored in its cache.

2. If the IP address is not available, the browser requests it from a DNS server.

3. The DNS server finds the IP address associated with **www.schoolproject.com** and returns it to the browser.

4. The browser uses the IP address to connect to the web server hosting the website.

5. The web server sends the website's files to the browser, which displays the website.

c) Explain the role of the DNS server in this situation.

A DNS (Domain Name System) server translates a domain name, such as

www.schoolproject.com, into its corresponding IP address. It helps the browser locate the correct web server on the internet. Without DNS, users would need to remember IP addresses instead of using easy-to-remember domain names.

Task 3: Transmission Trouble (Q & A)

1. What does it mean when there is an error in the data?

an error is a mistake or accidental change in data.

2. What is data corruption?

Corrupted data is data that is unreadable or incorrect

3. Can you give two ways that errors can happen during data transmission?

Electricity surges

Radio wave interference (third option is cross talk, any two of these is accep

4. Match the following terms to their correct definitions:

Term	Definition
Crosstalk	Data is changed accidentally during transmission
Data Error	Converts readable data into a secret code
Encryption	Disruption due to external wireless signals
Radio Interference	Interference between communication channels

5. Sara is video calling her friend using a wireless internet connection. During the call, the audio becomes unclear.

- a) Which cause of data error is most likely responsible in this situation?

There is probably radio interference in the call as she is communicating through a wireless network.

- b) Explain how this type of error affects data transmission.

Interference can occur when multiple devices transmit data on similar frequencies or there are overlapping signals which can mix messages or cause confusion.

6. Ali sends personal documents over a public Wi-Fi network. He does not use encryption.

(this line is extra)

- a) Why is this a risk?

Personal data can be intercepted by anyone on the network if they are not encrypted.

- b) What can a hacker do with Ali's unencrypted data?

Hackers steal personal information to access bank accounts, passwords, destroy or corrupt data on the person's computer or use the data for fraud etc.

Task 5: Review of Networks and Digital Communication

1. State the name of the **text-based address** for a website.

Domain name

2. Which of the following would help keep data safe when it is transmitted from one device to another? Select the correct answer.

- A. Crosstalk
- B. Decryption
- C. Encryption**
- D. Interference

3. State the name of the hardware that stores the data for a website and sends it to the web browser when requested: **Web Server**

Give two ways that a user can check whether a website is secure.

Two ways to check if a website is secure: Look for https in the URL Look for the padlock symbol in the browser

4. Which of the following is not part of a URL? Select the correct answer.

- A. Domain name
- B. IP address**
- C. Path
- D. Protocol

5. Describe what a domain name server (DNS) does in **three or four steps**.

**The user types a domain name, such as www.schoolproject.com, into a web browser.
The browser sends a request to a DNS server to find the IP address linked to the domain name.
The DNS server looks up the domain name and returns its corresponding IP address.
The browser uses the IP address to connect to the web server and display the website.**

6. Complete the sentences about symmetric encryption. Use the terms from the list.

Some of the terms in the list will **not** be used. You should only use a term **once**.



algorithm	cipher	copied	delete	key	plain
private	public	standard	encryption	understood	unreadable

Converting data into an unreadable form is called encryption.

The data before encryption is known as plain text.

To scramble the data, an encryption key, which is a type of algorithm, is used.

The data after **encryption** is known as cipher text.