NAME _____

DATE _____

CLASS _____

WEB & WIRELESS TECH

Tim Berners-Lee

Architect of the World Wide Web

Tim Berners-Lee and the Invention of the World Wide Web

Sir Timothy Berners-Lee (born 1955) is a British computer scientist widely credited with inventing the World Wide Web. In 1989, while working at CERN, the European physics laboratory in Switzerland, he proposed a system for managing and linking information across an organization's computers. Between 1990 and 1991 he built the first web browser and the first web server and published the world's first website, info.cern.ch.

The Web rests on three technologies Berners-Lee designed, which remain its foundation today. HTML (HyperText Markup Language) structures the content of web pages. The URL (Uniform Resource Locator) gives each resource a unique address. HTTP (HyperText Transfer Protocol) defines how computers request and send those resources. Together with the hyperlink, a connection that lets one document reference another, these tools turned scattered files into an interconnected web of pages.

A crucial distinction is that the World Wide Web is not the same as the Internet. The Internet is the global network of interconnected computers: the underlying infrastructure of cables, routers, and communication signals that carry data between machines. The Web is a system of linked documents that runs on top of that infrastructure and is viewed through browsers. Berners-Lee did not invent the Internet, which already existed; his achievement was designing the Web that made the Internet broadly useful to ordinary people.

In 1993, Berners-Lee persuaded CERN to release the Web's technology royalty-free, so that anyone could use or build on it without permission or payment. This open, non-proprietary approach removed barriers to adoption and is widely seen as a key reason the Web grew explosively rather than fragmenting into competing paid systems.

In 1994 Berners-Lee founded the World Wide Web Consortium (W3C) to develop open standards that keep the Web interoperable. In later years he championed causes such as web privacy and open data, arguing that the Web should remain free and open to all. He was knighted by the Queen in recognition of his contribution to the modern world.

Part 1 · Comprehension & Analysis

1. Analyze the relationship between the Internet and the Web as described in the passage. Why is it inaccurate to say Berners-Lee 'invented the Internet'?

2. How did the three core technologies (HTML, URL, HTTP) and the hyperlink work together to create the Web?

3. According to the passage, why is the 1993 decision to make the Web royalty-free considered so important?

4. What is the purpose of the W3C, and what does it reveal about Berners-Lee's vision for the Web?

Part 2 · Quantitative Challenge

Modeling the Web's Explosive Growth

Making the Web royalty-free in 1993 helped it grow exponentially. Model this with a simple doubling scenario: imagine a network that starts with 1 website and doubles every year. Exponential growth follows N = 2^t, where t is the number of years. Compute each value and double-check your arithmetic.

1. How many websites are there after 3 years? Use N = 2^3.

2. How many websites are there after 7 years? Use N = 2^7.

3. How many websites are there after 10 years? Use N = 2^10.

4. Now suppose the network instead only ADDED 10 new sites per year, starting from 1 (so N = 1 + 10t). How many after 10 years, and how does that compare to the doubling result?

Part 3 · Discussion & Extension

Berners-Lee gave the Web away for free and has argued it must stay open to all, yet today a handful of large companies control much of what people see and do online. Should the Web remain a free and open public resource, or is some central control necessary to keep it safe and workable? Take a position and defend it using evidence from Berners-Lee's decisions and the modern Web.