**Lesson Plan**

**Course Title:** Web Technologies  
**Session Title:** Internet Fundamentals & Background

**Lesson Duration:**  
2 Hours

**Performance Objective:**  
Upon completion of the lesson, students will have an understanding of why the Internet was developed, how it works, and its evolution over time.

**Specific Objectives:**  
- Students will be able to describe why the Internet was developed and its background.  
- Students will be able to describe the Internet protocols such as TCP/IP.  
- Students will be able to describe the different information protocols such as http, pop3, FTP, and Telnet and describe how information is transmitted online.  
- Students will understand the difference between the Internet and the World Wide Web.  
- Students will be able to describe how the Internet has evolved over time.

**Preparation**

**TEKS Correlations:**  
- 3C – Identify telecommunications and networking components.  
- 3E -- Identify current and future Internet protocols such as hypertext transfer protocol, file transfer protocol, telnet, and email.  
- 3F – Identify new web technology trends.  
- 10C – Demonstrate an understanding of and compliance with Transport Control Protocol / Internet Protocol.

**Instructor / Trainer**

**References:**  
- Warriors of the Net Movie  
- Content Developer Knowledge

**Instructional Aids:**  
- Internet Fundamentals Presentation

**Materials Needed:**  
- Printed presentation handouts for students  
- Lecture Worksheet printed for each student  
- Quiz printed for each student

**Equipment Needed:**  
- Projector for presenting presentation
### Introduction (LSI Quadrant I):

Ask students how long the Internet has been around. Most will likely say since the 1990s. Explain to the students that the Internet goes back to the 1960s and is a byproduct of the Cold War between the United States and the Soviet Union.

### Outline (LSI Quadrant II):

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<th>MI</th>
<th>Instructor Notes:</th>
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<td><img src="image" alt="Teacher" /></td>
<td><strong>Introduction to the Lesson</strong></td>
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<td><img src="image" alt="Teacher" /></td>
<td><strong>Development of the Internet</strong></td>
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<td><img src="image" alt="Teacher" /></td>
<td>- Need for Communication</td>
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<td><img src="image" alt="Teacher" /></td>
<td>- The Early Internet &amp; Arpanet</td>
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<td><img src="image" alt="Teacher" /></td>
<td><strong>How Information is Transmitted Online</strong></td>
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<td></td>
<td><img src="image" alt="Teacher" /></td>
<td>- TCP/IP Protocol</td>
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<td><img src="image" alt="Teacher" /></td>
<td>- Other Information Protocols</td>
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<td><img src="image" alt="Teacher" /></td>
<td>- Transmission of data packets</td>
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<td><strong>Early Uses of the Internet</strong></td>
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<td><img src="image" alt="Teacher" /></td>
<td><strong>Tim Burners-Lee and the Development of the World Wide Web</strong></td>
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<td><img src="image" alt="Teacher" /></td>
<td>- The need for more efficient information sharing</td>
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<td><img src="image" alt="Teacher" /></td>
<td>- The invention of HTML</td>
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<td><strong>The Internet Today</strong></td>
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<td>- Integrated uses of the Internet</td>
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<td>- New technologies</td>
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<td>- Location based services</td>
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<td><img src="image" alt="Teacher" /></td>
<td><strong>End of Lesson Quiz</strong></td>
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### Application (LSI Quadrant III):

Distribute the Lecture Worksheet. The students should complete the Lecture Worksheet during the presentation. Following the presentation, the instructor should
Review and insure that students have completed the worksheet before moving on.

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<tr>
<th>MI</th>
<th>Independent Practice (LSI Quadrant III):</th>
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**Summary**

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<tr>
<th>MI</th>
<th>Review (LSI Quadrants I and IV):</th>
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<tr>
<td></td>
<td>• The instructor should review important concepts with the student such as:</td>
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<tr>
<td></td>
<td>• Why does the Internet not have a central hub?</td>
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<td></td>
<td>• How is information sent across the Internet?</td>
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<td></td>
<td>• Who invented HTML?</td>
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<td>• What is the difference between the Internet and the World Wide Web?</td>
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**Evaluation**

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<th>Informal Assessment (LSI Quadrant III):</th>
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<tr>
<td></td>
<td>Observe the students as they complete the Lecture Worksheet and the Information Transmission Exercise to assure they have an understanding of the concepts presented and an understanding of how information is transmitted online.</td>
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<th>MI</th>
<th>Formal Assessment (LSI Quadrant III, IV):</th>
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<td>• Following the lesson, students should complete the quiz to test their knowledge and understanding of the concepts presented.</td>
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**Extension**

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<th>MI</th>
<th>Extension/Enrichment (LSI Quadrant IV):</th>
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<tr>
<td></td>
<td>• Have students look up the IP Address of the computer they are using. (There are a few websites which provide that service for free.)</td>
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<td>• Have student open the command prompt on their computer and type: ping (nameofsearchengine).com</td>
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<td></td>
<td>This will send a data packet to a search engine, called a ping, and the search engine will send it back, called a pong. The time of the exchange will be displayed. Have them experiment with multiple other sites to see the difference in response time.</td>
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<tr>
<td><strong>Strategies</strong></td>
<td><strong>Verbal/Linguistic</strong></td>
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<td>Lecture, discussion, journal writing, cooperative learning, word origins</td>
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<td>Reading, highlighting, outlining, teaching others, reciting information</td>
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Internet Fundamentals and Background Lecture Notes

• Describe how the cold war is directly related to the development of the Internet.

• Who did the US Department of Defense partner with in order to develop this new method of communication?

• What were the four universities involved in the development of the Internet?
  • ____________________________
  • ____________________________
  • ____________________________
  • ____________________________

• What was the first prototype of the Internet called?

• Why would traditional networks not work for the new design of the Internet?

• What is TCP?

• What is IP?
• Briefly describe how information is sent across the Internet.

• What type of data uses the http port?

• What type of data uses POP protocol?

• What type of data uses FTP protocol?

• How was the Internet first used when it originally came out?

• What contribution did Tim Burners-Lee make to the world?

• What book inspired Tim?

• What was the first browser available to the general public?

• Which operating system included an integrated browser that led to a government attempt to break up another one?

• Name two ways how the Internet has been integrated into our everyday life?
  • ___________________________________
  • ___________________________________
  • ___________________________________
  • ___________________________________
Internet Fundamentals and Background Lecture Notes - KEY

- Describe how the cold war is directly related to the development of the Internet.

  The US Military needed a reliable method of communications should nuclear war between the USA and Soviet Union break out.

- Who did the US Department of Defense partner with in order to develop this new method of communication?

  The RAND Corporation

- What were the four universities involved in the development of the Internet?

  A. Stanford Research Institute  
  B. UCLA  
  C. University of California at Santa Barbara  
  D. University of Utah

- What was the first prototype of the Internet called?

  ARPANET

- Why would traditional networks not work for the new design of the Internet?

  Traditional networks used a centralized hub system that would cause the entire network to go down should it go out.

- What is TCP?

  Transfer Control Protocol – Specifies that information should be broken down into data packets of 1500 and addressed with the IP address of the sending and receiving computers.

- What is IP?

  Internet Protocol – Specifies that each computer on the Internet should be assigned a unique address.
• Briefly describe how information is sent across the Internet.

  Information is broken down into data packets and addressed with the sending and receiving computers IP address. Each data packet is sent out along different paths to its destination.

• What type of data uses the http port?

  Web Pages

• What type of data uses POP protocol?

  Email

• What type of data uses FTP protocol?

  File Transfer

• How was the Internet first used when it originally came out?

  Primarily by government and the scientific community

• What contribution did Tim Burners-Lee make to the world?

  He invented HTML and the World Wide Web

• What book inspired Tim?

  “Enquire Within Upon Everything”

• What was the first browser available to the general public?

  Accept correct answer.

• Which operating system included an integrated browser that led to a government attempt to break up another one?

  Accept correct answer.

• Name two ways how the Internet has been integrated into our everyday life?

  A. Social Networking
  B. Auction Sites
  C. Travel Sites
  D. Location Based applications
Internet Fundamentals Quiz

• Who did the US Department of Defense join up with to develop the Internet?
  • NATO
  • RAND Corporation
  • UN
  • Congress

• The primary method of communication on the Internet uses two sets of rules known as:
  • TCP & IP
  • Ports & Protocols
  • Fios & DSL
  • Packets & Hubs

• Information is broken down into what before being sent across the Internet?
  • Email messages
  • Files
  • Data Packets
  • Ports

• Which of the following was NOT one of the universities which participated in the testing and development of the original Internet prototype?
  • UCLA
  • MIT
  • Stanford Research Institute
  • University of Utah

• The rules governing how data is handled on the Internet is called:
  • Ports
  • Data Packets
  • Guidelines
  • Protocols

• The first prototype of the Internet was called:
  • ARPANET
  • Protocol
  • Networks
  • RandNet

• The Inventor of the World Wide Web was
  • Bill Gates
  • Al Gore
  • Tim Burners-Lee
  • Steve Jobs
• The fundamental language used for formatting text on web pages is
  • JavaScript
  • Protocols
  • Java
  • HTML

• What did the US Government attempt to do to a very successful software company?
  • Shut it down.
  • Funded the development of its operating system
  • Split the company into two smaller companies
  • Chartered with them to promote the Internet
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