THE LANGUAGE OF THE INFORMATION AND COMMUNICATION TECHNOLOGIES

1.0

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Objectifs

By the end of this lesson, students should be able to :
- define and use ICTs words and phrases
- express ability
- write a paragraph to say how computers communicate

Introduction

LEARNING SITUATION

A student from UVCI (Virtual University of Côte d'Ivoire) has discovered that when making a research on the internet, his computer and other computers communicate in order to collect information from internet sites all over the world. That students wants to know how it works. The English teacher helps him and the other students know the language of computers.

READING SPOT I

A. READING COMPREHENSION

Read the following text to learn about computers language

When two humans converse, they may have to use the same language but they generally understand each other without having to adhere to rigid rules of grammar or formal language frameworks. Computers, on the other hand, have to have everything explicitly defined and structured. If computers wish to communicate with one another, they have to know in advance exactly how information is to be exchanged and precisely what the format will be. Therefore, standard methods of transmitting and processing various kinds of information are used and these methods are called "protocols". Protocols are established by international agreement and ensure that computers everywhere can talk to one another. There are a variety of protocols for different kinds of information and functions but they follow either the TCP/IP model or the OSI model. TCP (Transmission Control Protocol) and IP (Internet Protocol) are two different procedures that are often linked together. When information is sent over the Internet, it is generally broken up into smaller pieces or "packets". The use of packets facilitates speedy transmission since different parts of a message can be sent by different routes and then reassembled at the destination. It is also a safety measure to minimize the chances of losing information in the transmission process. TCP/IP and OSI are internet protocol suites.

From:
https://en.wikipedia.org/wiki/Internet_protocol_suite#Comparison_of_TCP.2FIP_and_OSI_layering

Users of the Information and Communication Technologies also meet or use other

languages. Therefore they encounter words like hacker, android, cookies, firewall, password, malware, spyware, upload, download, GIF, browse, peer-to-peer, Artificial Intelligence, VoIP, chat, RSS, flux, EPS, TIFF, CAD, JPEG, E-Mail, web, MAN, PAN, DAB, DMB, DVB-H, GIS, and so on. Those words are mainly in relation with the Information and Communication Technologies (ICT) and the users have to search for the meaning of each word since their existence is as recent as ICT.

Let's define each item:

Hacker: a person who uses computers to gain unauthorized access to data or a skilled computer expert that uses their technical knowledge to overcome a problem.

Android: a humanoid robot or synthetic organism designed to imitate a human

Cookies : a packet of data a program receives and sends back unchanged

Firewall : a technological barrier designed to prevent unauthorized or unwanted communications between computer networks or hosts

Password : a word or string of characters used for user authentication or access approval to a resource which is to be kept secret.

Malware : (malicious software) is an umbrella term used to refer to a variety of forms of hostile or intrusive software, including computer viruses, worms, trojan horses, ransomware, spyware, adware, scareware, and other malicious programs.

Spyware : it is software that aims to gather information about a person or organization without their knowledge, that may send such information to another entity without the consumer's consent, or that asserts control over a device without the consumer's knowledge

Upload : to send data to a remote system such as a server or another client

Download : to receive data from a remote system

Data : information that is produced or stored by a computer

Browse : to glance at random through a book, magazine, etc

peer-to-peer : the egalitarian social networking (sharing, collaboration)

Artificial Intelligence : (AI) is intelligence exhibited by machines.

JPEG : Joint Photographic Experts Group

LAN : Local Area Network

OS : Operating System

WAN : Wide Area Network

GIF : Graphic Interchange Format

B. Exercice : Match each word with its right definition. Choose the correct series

words

1-spyware

2-password

3-download

4-peer-to-peer

5-Browse

definitions

a-a secret word or phrase that must be used to gain admission to something.

b-to look at information on the internet

c-collects and sends private information from the infected computer to a third party

d-Files can be shared directly between systems on the network without the need of a central server

e-copy (data) from one computer system to another, typically over the Internet.

☐	1-c ; 2-b ; 3-e ; 4-d ; 5-a
☐	1-b ; 2-a ; 3-d ; 4-e ; 5-c
☐	1-c ; 2-a ; 3-e ; 4-d ; 5-b
☐	1-d ; 2-b ; 3-c ; 4-e ; 5-a
☐	1-e ; 2-a ; 3-b ; 4-c ; 5-d

C. read the text again and do the activities that follow

When two humans converse, they may have to use the same language but they generally understand each other without having to adhere to rigid rules of grammar or formal language frameworks. Computers, on the other hand, have to have everything explicitly defined and structured. If computers wish to communicate with one another, they have to know in advance exactly how information is to be exchanged and precisely what the format will be. Therefore, standard methods of transmitting and processing various kinds of information are used and these methods are called "protocols". Protocols are established by international agreement and ensure that computers everywhere can talk to one another. There are a variety of protocols for different kinds of information and functions but they follow either the TCP/IP model or the OSI model. TCP (Transmission Control Protocol) and IP (Internet Protocol) are two different procedures that are often linked together. When information is sent over the Internet, it is generally broken up into smaller pieces or "packets". The use of packets facilitates speedy transmission since different parts of a message can be sent by different routes and then reassembled at the destination. It is also a safety measure to minimize the chances of losing information in the transmission process. TCP/IP and OSI are internet protocol suites.

D. Exercice : Write true when the sentence is correct and false when the sentence is not correct

Computers communicate through rigid rules of grammar.

E. Exercice : Write true when the sentence is correct and false when the sentence is not correct

People follow protocols to communicate.

F. Exercice : Write true when the sentence is correct and false when the sentence is not correct

TCP/IP and OSI are protocol suites.

G. Exercice : Write true when the sentence is correct and false when the sentence is not correct

The OSI model comprises 4 layers.

H. PRESENTATION OF PROTOCOLS

The TCP/IP Model consists of only 4 layers:

Application layer (applications and processes running on the network)

Transport layer (provides end-to-end data delivery services)

Internet layer (makes datagrams and handles data routing)

Network layer (provides routines allowing access to the physical network)

1- Application layer : BGP ;DHCP ; DNS ; FTP ; HTTP ; IMAP ; LDAP ; MGCP ; MQTT ; NNTP ; NTP ; POP ; ONC/RPC ; RTP ; RTSP ; RIP ; SIP ; SMTP ; SNMP ; SSH ; Telnet ; TLS/SSL ; XMPP ; ...

2-Transport layer : TCP ; UDP ; DCCP ; SCTP ; RSVP ; ...

3-Internet layer : IP ; IPv4 ; IPv6 ; ICMP ; ICMPv6 ; ECN ; IGMP ; OSPF ; IPsec ;...

4-Link layer : ARP ; NDP ; Tunnels ; L2TP ; ; PPP ; MAC ; Ethernet ; DSL : ISDN ; FDDI ;

The OSI (Open Systems Interconnection) Data Model is made up of seven (7) layers:

1-Physical layer (defines the physical characteristics of the network)

2-Data-link layer (provides safe communication of data over the physical network)

3-Network layer (handles connection to the network by the higher layers)

4-Transport layer (provides end-to-end errors detection and correction)

5-Session layer (manages sessions among applications)

6-Presentation layer (provides standard data representations for applications)

7-Application layer (applications connected to the network)

LANGUAGE SPOT II

A. ASKING QUESTIONS WITH "HOW"

1-How many: for items that we can count

The TCP/IP Model consists of only **4 layers**.

The OSI (Open Systems Interconnection) Data Model is made up of **seven (7) layers**.

When a person wants to be informed about the number of layers in the TCP/IP model or in the OSI model, he/she asks the following question:

How many layers does the TCP/IP consist of?

How many layers is the OSI Data model made up of?

2-How often: for frequency

The boy uses the internet **everyday** ==== How often does he use the internet?

She **rarely** downloads files. ==== How often does she download files?

We learn lessons on our computer six days a week. ==== How often do we learn lessons on our computer?

3-How fast: for the speed of an action

He downloads at **546kbs/seconds**. ==== How fast does he download ?

We receives the e-mail in **3 seconds**. ==== How fast do you receive the e-mail?

4-How far: for the distance

The other computer is **7778 km** from here. === How far is the other computer?

They can chat at a **8769 km** distance. === How far can they chat?

5-How much: for items that we cannot count.

They shared **some information**. ==== How much information did they share?

She has **different news** from her friend. ======= How much news does she have?

6-How long: for duration

We will learn in this university **for 3 years**==== How long will we learn in this university?

B. Exercice : Fill in the gaps with "how far" , "how many", "how much" , "how old", "how fast", "how often"

1- _____ do you play football?

I play football every week-end.

2- _____ brothers have you got?

I have got three brothers

3- _____ is your sister?

My sister is 20.

4- _____ does the subway go?

The subway goes at 200 km/h.

5- _____ water does she drinks per day?

She drinks 2 litres per day.

6- _____ is Dallas from New York?

Dallas is 2492 Kilometres from New York.

C. EXPRESSING ABILITY

CAN - CAN'T/ CANNOT - BE ABLE TO -

Here are some sentences from the text :

-Protocols are established by international agreement and ensure that computers everywhere **can** talk to one another.

-The use of packets facilitates speedy transmission since different parts of a message **can** be sent by different routes.

Can is used to express a **physical ability**, an **intellectual capacity** or an **ability to act**. It is synonymous with **to be able to.** The past simple is **could** and **the negative is cannot or can't**.

-She **can't** read because she did not go to school.

-Bob **can** drive the car.

-He **is not able to** play the match because he is not fine.

-Computers **can** communicate with one another through protocols.

D. Exercice : Find the correct answer among the words between parenthesis to fill in the gaps.

1-He is an expert, he _____ fail. (can – can't)

2-Alicia _____ to read and speak German. (can – is able)

3-Yesterday, he was _____ to win the context. (able – could)

4-Last month, he _____ run faster. (able – can – could).

5-He is bad at boxing. He _____ beat his opponent. (can – can't – is able to)

E. FORMING WORDS WITH PREFIXES AND SUFFIXES

We can add some syllables to a word to form new words. If the syllable is added at the beginning of the word, we call it a prefix. When the syllable comes at the end of the main word, we call it a suffix.

Examples: pass**word** (pass + word) ; pass**port** (pass + port) exist**ence** : (exist + ence = existence) ; hack**er**

understand

F. Exercice : Add prefixes or suffixes to form other words. Choose among : un- ; -able; over-; under-; -ation; up-; down-; -ing;

1-suit : _____

2- come : _____

3– clear : _____

4– communicate : _____

5– grade : _____ ; _____

6– load : _____ ; _____

7- inform : _____

8- organize : _____ ; _____

9– mean : _____

10– authorize : _____

PRACTICE SPOT III

A. Exercice

Through internet, computers as well as people communicate all over the world. Re-arrange the paragraphs to say how computers communicate with one another.

1-When the packets arrive at their final destination, IP on the destination host reassembles the fragments into the original payload.

2-When a person searches for something on the internet, his computer is the source.

3-If a router receives an IP packet that is too large for the network to which the packet is being forwarded, IP fragments the original packet into smaller packets that fit on the downstream network.

4-This process is referred to as fragmentation and reassembly.

5-When an IP packet is sent by the source, it places a unique value in the Identification field.

- 1 ; 2 ; 3 ; 4 ; 5
- 2 ; 3 ; 1 ; 4 ; 5
- 3 ; 5 ; 1 ; 4 ; 2
- 2 ; 5 ; 3 ; 1 ; 4
- 3 ; 2 ; 5 ; 1 ; 4

Glossaire

PROTOCOLS

SSH : Secure Shell

SMB : Server Message Block, one version of which was also known as CIFS (Common Internet File System)

FTP : File Transfer Protocol

SMTP : Simple Mail Transfer Protocol

TCP : Transmission Control Protocol

Telnet : Teletype Network

HTTP : Hyper Text Transfer Protocol

HTTPs : Secure Hyper Text Transfer Protocol

POP : Post Office Protocol

HTCPCP : Hyper Text Coffee Pot Control Protocol

MTP : Media Transfer Protocol

SFTP : Secure File Transfer Protocol

SSL : Secure Socket Layer

TLS : Transport Layer Security

E6 : Ethernet globalization protocols

NTP : Network time protocol

PPP : Point to Point Protocol

NNTP : Network News Transfer Protocol

QOTD : Quote Of The Day

IMAP : Internet Message Access Protocol

Bitcoin Protocol : Protocol for Bitcoin transactions and transfers on the web

Ethereum Protocol : Ethereum transactions and smart contracts

HTML: Hyper Text Markup Language

Références