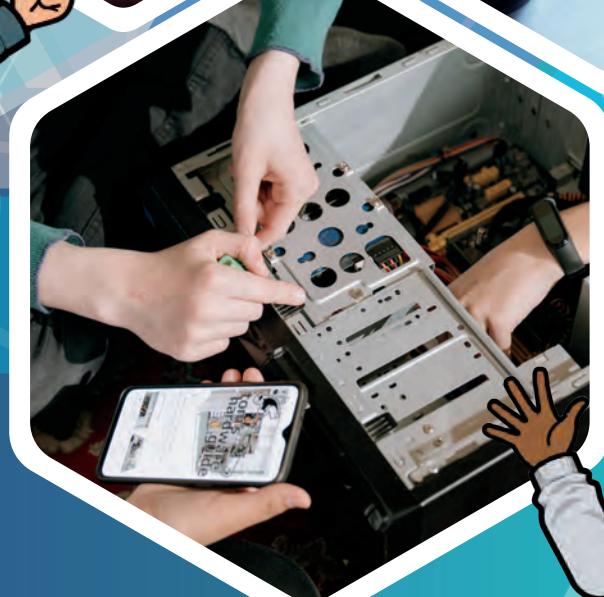
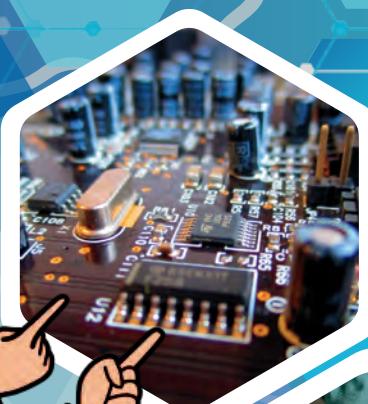


# #WORKING URUGUAY

## BACHILLERATO INFORMÁTICA

### HARDWARE

1



**ANEP**

CONSEJO  
DIRECTIVO  
CENTRAL

DIRECCIÓN  
DE POLÍTICAS  
LINGÜÍSTICAS



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**#LivingUruguay** and **#ExperiencingEnglish** Series.

# References



**READ**



**WRITE**



**LISTEN**



**SPEAK**



**DISCUSS**



**WORK IN PAIRS**



**WORK IN GROUPS**



**ROLE-PLAY/ PERFORM**



**SEARCH THE WEB**



**PLAY A VIDEO / AUDIO**



**RECORD**



**THINK**



**PLAY A GAME**



**PROJECT**



**HELP**



**WATCH A VIDEO**



**IT'S YOUR TURN!**



**TIME-ALLOTTED  
TASK**



**CONVERSATION  
CIRCLE**



**MARKER TALK**



**MATCH**

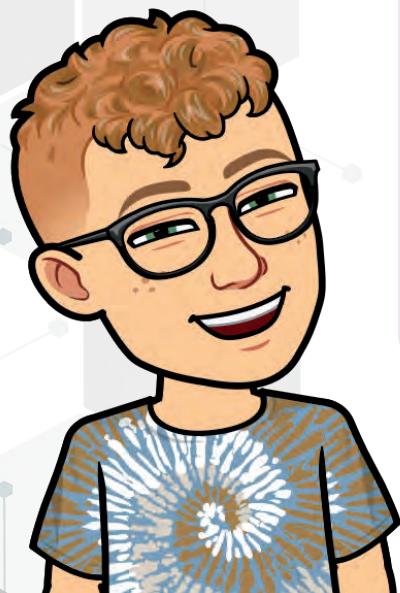
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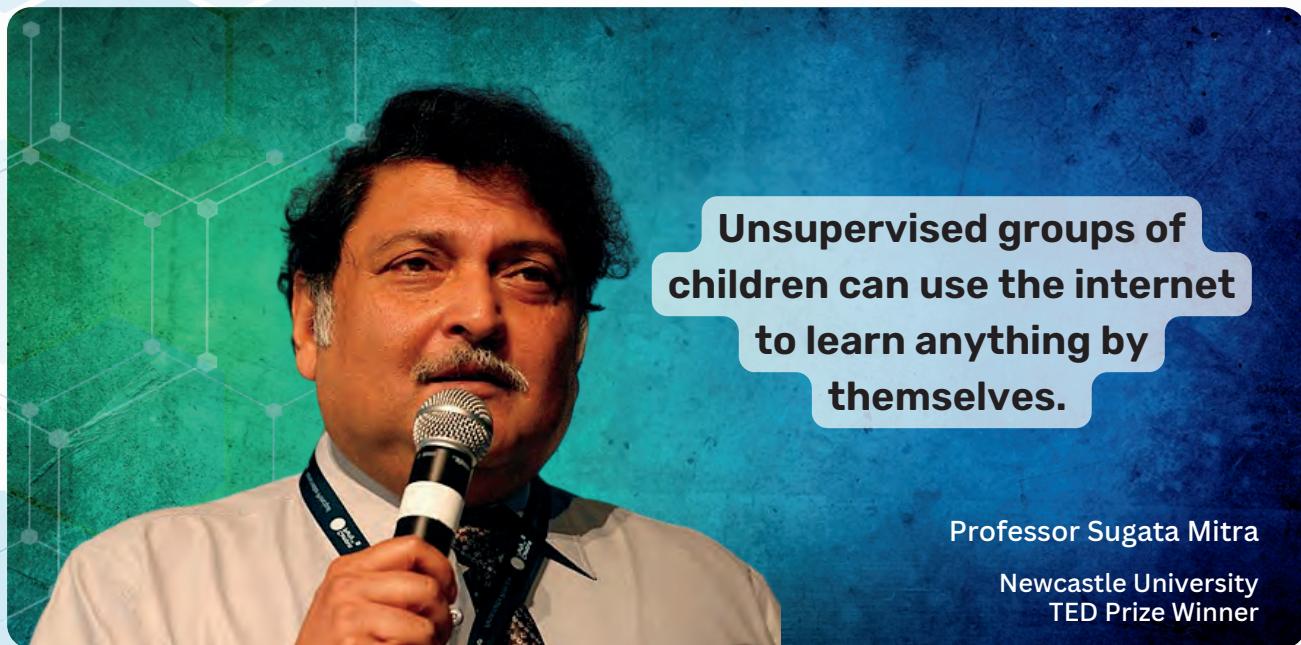
# UNIT 1

## IT Systems



# 1 What is a computer?

**Read** the following quote. What ideas/thoughts does the message bring to mind?



(Image by Wikimedia Commons)

**Get into groups** of 4 and **do** a *round-robin* activity to share your opinions.



**Look** at the photograph. **Jot down** some ideas about the man.



- Who is he?
- Where is he from?
- What is his occupation?
- Where does he work?

**Use** the information above to **complete** the fact file.



## PROFILE

Name: \_\_\_\_\_

Nationality: Indian

Occupation: \_\_\_\_\_

Place of Work: \_\_\_\_\_

**VIDEO TIME!** Watch the video and **take notes** of the things that catch your attention the most. For example, the places, people, objects, etc.

**Get in pairs** and **share** your ideas.



**Watch** the video again. Are these sentences *true* or *false*?



- 1 He started his experiment in a rich area in New Delhi. \_\_\_\_\_
- 2 His theory proved that students can learn alone. \_\_\_\_\_
- 3 The objective is for students to have a good time while learning. \_\_\_\_\_
- 4 The project is compared to a bonfire. \_\_\_\_\_
- 5 Children can't learn with others in this project. \_\_\_\_\_



Is there a similar project in Uruguay?

How can you compare '*Plan Ceibal*' and the '*Hole in the Wall*' project?



**Complete** a chart with relevant information about each project.

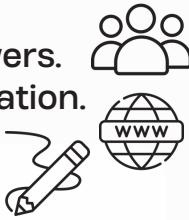


### **Plan Ceibal**

(Images by Wikimedia Commons, [www.correo.com.uy](http://www.correo.com.uy) and [www.gub.uy](http://www.gub.uy))

### **The Hole in the Wall**

**Get into groups** and **discuss** the following questions. Then, **write** the answers. You can **use** the previous chart or **search** the web if you need more information.



- 1** What is the role of computers in The Hole in the Wall project and Plan Ceibal?
- 2** How do these initiatives try to solve the digital divide in their respective countries?
- 3** What are the similarities and differences between the two projects?
- 4** How have they impacted their communities?

**Think** about the role of computers in India and the role of computers in Uruguay.

**Get into groups** and **summarize** the most important ideas about the *Hole in the Wall* and *Plan Ceibal*, including differences and similarities.

You can use the text below as a model, too.



### Did you know?



The **digital divide** refers to the gap between those who have access to modern information and communication technologies (ICTs) and those who do not, often due to economic, social, or geographical barriers.

**Name** a spokesperson for the group and **share** your ideas with the class.

#### The One Laptop per Child Project

The *One Laptop per Child* (OLPC) project is a global initiative with an important mission: to distribute low-cost laptops, designed specifically for educational purposes, to children in developing countries.

The OLPC project was founded in 2005 by Nicholas Negroponte at the *Massachusetts Institute of Technology* (MIT) and aimed to solve the digital divide by giving students in underserved communities powerful learning tools. At the heart of the OLPC project is the XO laptop. These laptops are pre-loaded with educational software and empower children to explore, learn and create both inside and outside the classroom.

The impact of the OLPC project has been significant, reaching countries like Rwanda, Peru and Nepal, among others. The project has opened new opportunities for learning and development for millions of children around the world.



(Logo by Wikimedia Commons)

#### Project **What is a computer to me?** **What is a computer in my community?**



- Work on your own concept of what a computer is. (e.g. physical object, tool for communication, etc.)
- Carry out some research and link that concept to your community.
- Consider the impact the computer may have on the people in your neighborhood or the school.
- Create a short video stating what a computer is, including the impact it has on others and any other ideas you may have.

# 2 The insides

Have you ever looked inside a computer case, or seen pictures of the inside of one? If not, do you have any ideas of what it looks like?

Do you recognize any of the computer parts in the pictures?



There are specific elements inside a computer that make it work.

**Look** at the following list and **say** whether they belong to the inside or the outside of a computer.

Battery charger  
Camera  
CPU  
Hard drive  
Heat sink  
Keyboard  
Expansion Slot

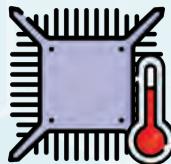
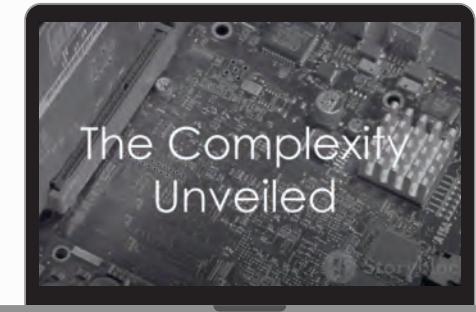
Monitor  
Motherboard  
Mouse  
Speakers  
Power Supply Unit  
RAM  
Fan

inside	outside

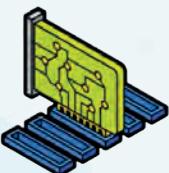
**Watch** a video about a computer's system.  
What do these definitions refer to?



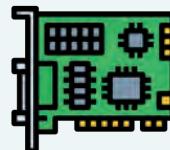
**Label** the pictures with words from the video.



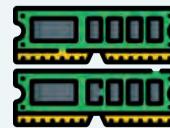
1 heat sink



2 \_\_\_\_\_



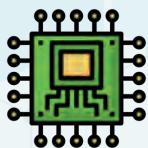
3 \_\_\_\_\_



4 \_\_\_\_\_



5 \_\_\_\_\_



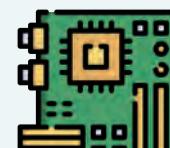
6 \_\_\_\_\_



7 \_\_\_\_\_



8 \_\_\_\_\_



9 \_\_\_\_\_



10 \_\_\_\_\_

**Write** the correct names next to the definitions.



1 heat sink : It draws heat away from the processor.

2 : A place in a computer where an expansion card can be inserted.

3 : It provides faster and more durable long-term storage.

4 : It receives AC current from an electrical outlet and converts it into the DC current needed to power the computer.

5 : This is the short-term memory that the computer uses whenever it's performing calculations.

**Get in pairs** and **write** a one-sentence definition of the remaining computer parts mentioned in the video.



6 hard disk drive: \_\_\_\_\_

7 CPU: \_\_\_\_\_

8 expansion card: \_\_\_\_\_

9 motherboard: \_\_\_\_\_

10 built-in battery: \_\_\_\_\_

**Watch** the video again and **decide** if the following sentences are *true* or *false*.



- 1** Regardless of the computer type, the motherboard is a compact component housing only a few critical elements of a computer. \_\_\_\_\_
- 2** Modern computers often opt for solid-state drives (SSDs) because they are cheaper than traditional hard disk drives (HDDs). \_\_\_\_\_
- 3** Expansion slots in desktop motherboards are primarily used to connect external devices like printers and scanners. \_\_\_\_\_
- 4** Laptops typically lack expansion slots due to space constraints and portability considerations. \_\_\_\_\_
- 5** The built-in battery in laptops serves as a backup power source only when the computer is connected to a power outlet. \_\_\_\_\_

## Project

### DIY Computer Assembly



Work in **groups** of 3-4 students.

You have to **assemble** a functional desktop computer according to a predetermined budget.

Purchase and assembly:

- You have a **budget** of US\$800 to purchase the components for your computer.
- Choose the components you want from the Computer Shop **price list**. Consider factors such as compatibility and functionality when selecting the components. Remember to respect your budget!
- Decide if the parts you have chosen belong to the *inside* or *outside* of the computer. Create a **diagram** to illustrate your choices.

Presentation:

- **Present** your computer to the class, explain your component choices and how they work together to create a functional system.
- After each presentation, **ask questions** and **give feedback** on your classmates' choices.

## COMPUTER Shop

### PRICE LIST



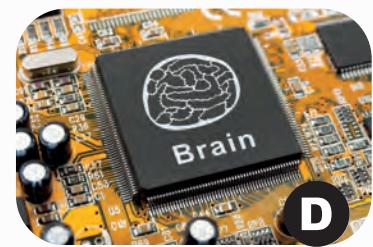
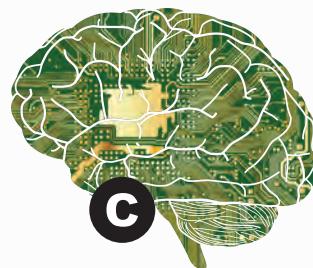
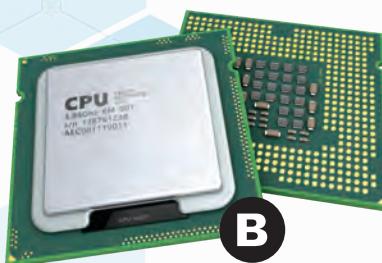
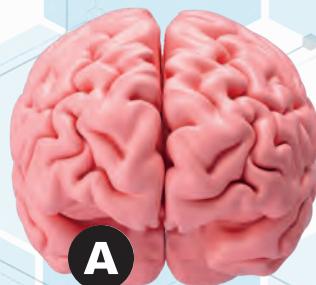
- **Motherboard:** US\$100
- **Central Processing Unit (CPU):** US\$200
- **Random Access Memory (RAM):**
  - 8GB DDR4: US\$80
  - 16GB DDR4: US\$140
- **Hard Disk Drive (HDD):**
  - 1TB HDD: US\$50
  - 2TB HDD: US\$80
- **Solid-State Drive (SSD):**
  - 250GB SSD: US\$60
  - 500GB SSD: US\$100
- **Power Supply Unit (PSU):** US\$80
- **Expansion Cards:**
  - **Graphics Card (optional):** US\$200
  - **WIFI Network Card (optional):** US\$30
- **CPU Cooling System:**
  - **Air cooler:** US\$40
  - **Heat sink:** US\$20
- **Computer Case:** US\$70
- **Optical Drive:** US\$20
- **Keyboard:** US\$30
- **Mouse:** US\$20
- **Monitor:**
  - 24" Full HD: US\$150
  - 27" 4K: US\$300
- **Cables and Connectors:** US\$30

# 3 The brain of the PC

**Look** at these pictures. What do they have in common?



**Find similarities and differences** among the three pictures and **discuss** what they represent.



(Image D from Publicdomainvectors.com)

Why do you think a CPU is sometimes referred to as the "brain" of the computer?

**Work in groups of four people**

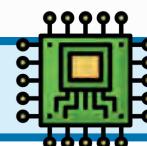


- Half of the group will **think** about all the processes and functions a human brain performs and **make** a list.
- The other half will **list** all the functions and processes a CPU performs.
- Compare** your lists. In which aspects are they similar and in which do they differ?



human brain

CPU



TIP!

You can search the web if you need help.

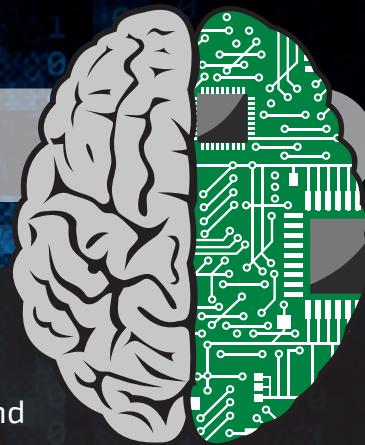
**Find out** more information about the brain and computer in the text below.

**Skim** through the text and **choose** the best subtitle. **Justify** your answer.



- Strategies for a Healthy Brain
- The Inner Workings of the Human Brain
- Similarities Between the Brain and the Computer

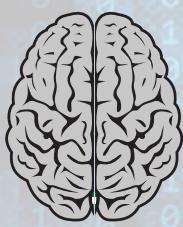
## MINDS & Machines:



The brain and the computer share striking similarities in how they process information and perform tasks. The brain, like a computer, receives and processes information from the senses and body, sending messages back to control bodily functions. Similarly, a computer, as a digital information-processing machine, operates by converting information into binary numbers and executing mathematical processes.

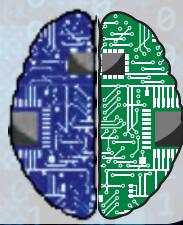
Despite these similarities, the human brain possesses unique capabilities beyond the reach of even the most advanced computers. Humans experience emotions and possess the ability to make decisions, which is attributed to human intelligence. This contrasts with computers, which rely solely on mathematical processes for decision-making.

Physically, the human brain weighs approximately 1.5 kilograms and consists of billions of neurons and supporting cells. In contrast, the CPU (central processing unit) of a computer is much smaller and lighter but utilizes chips, circuits, and logic gates to perform its functions, substituting the neurons in the brain.



**There are various sections of the brain, each with their own functions:**

- the cerebrum
- the cerebellum
- the diencephalon (including: thalamus, hypothalamus and pituitary gland)
- the brain stem (including: midbrain, pons and medulla)



**There are various sections of the CPU, each with their own functions:**

- microprocessors
- circuits
- logic bridges
- chips

All these things considered, the brain and the computer are very similar. One might have been inspired by the other: their functions, their elements and the processes taking place in each of them seem to be the same. Why do you think this happened? How can we relate human intelligence with artificial intelligence? It's up to you to find information and keep on finding similarities between these two incredible devices.

**Choose** two colors. With the first color, **highlight** all the terms connected to the *human brain*, while with the second color, **highlight** the ones connected to the *computer*.



**Get in pairs** and **compare** how many terms each of the members of the pair has highlighted.



**Read** the text again and **answer** these questions.



**1** Why can the brain go beyond the abilities of a machine?

---

**2** What does the brain look like?

---

**3** What are some characteristics of the CPU?

---

**4** How does the computer make decisions?

---

**5** What does the diencephalon include?

---

**Work in small groups**



- **Review** the text and **consider** potential applications or real-world scenarios where the knowledge gained from comparing the brain and the CPU could be applied. Consider the following questions.
  - How might understanding the similarities between the brain and the CPU contribute to technological advancements?
  - Can you think of any fields or industries where this knowledge could be particularly impactful?
- **Write** at least one application/scenario where the knowledge gained from comparing the brain and the CPU could be applied.
- **Share** your ideas with the class.
- **Discuss** the viability and significance of the groups' ideas.



People tend to use technology to recreate things similar to existing ones. For example, *word processor software substitutes a sheet of paper, etc.*

**Think of** a technological element (it can be an application or a device) that looks similar or recreates something that already existed.

**Take notes** about the similarities and differences between both objects.

Object 1	Object 2

**Write** a short paragraph comparing the two objects.



Can you think of other ways in which a human brain and a computer CPU can relate?

**Think** in terms of energy, speed, evolution over time, adaptability, etc. You can **create** a poster or an infographic to illustrate your point.



**Share** your piece of work with the rest of the class.

**Choose** the two most original ones and **give** reasons for your choice.



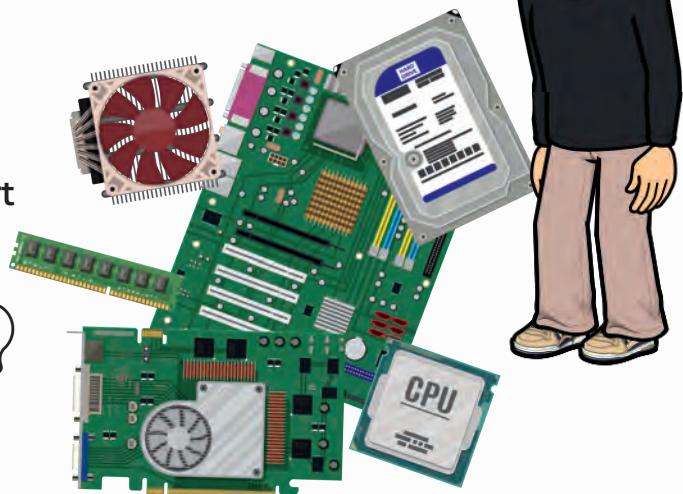
# 4 motherboard and cards

Pablo is worried because he turned on the computer but it did not start. He turned it off, turned it on again and it did not start. He unplugged it and turned it on again, but it did not work.

What may have happened?

In general, when the computer does not start it is because there might be a problem with the motherboard.

How would you **define** a motherboard?



Pablo found this *FAQs section* about the motherboard on a website.



Four questions are missing in the text. Can you **write** them?

**SMART CITY**  
TECHNOLOGY SOLUTIONS

HOME SERVICES **FAQS** CONTACT

**FAQs**  
Need a hand?  
We've got you!

Here you'll find the answers our clients valued the most.  
If you can't find the answer you need, just contact us!

(PAGE 1 OF 2)

**Q: WHAT IS A MOTHERBOARD?** (1)

**A:** The motherboard is an essential part of the computer. It's the circuit board that connects all your hardware to the processor, distributes electricity from the power supply, and defines the types of storage devices, memory modules, and graphics cards (among others) that can connect to your PC.

**Q: IS THE MOTHERBOARD IMPORTANT?** (2)

**A:** Of course, without it, none of the other computer parts could interact. Total motherboard functionality is necessary for a computer to work well.



**Q:**

(3)

**A:** The Planar Breadboard was the first motherboard-like component, designed by Patty McHugh, used in the IBM Personal Computer released in 1981. It helped connect different computer parts and allowed them to work together.

**Q:**

(4)

**A:** A motherboard comprises a special board called a PCB, a strong, flat material made of layers. This board has pathways and wires made of copper that connect different parts. The motherboard also has small electronic parts like capacitors, resistors, and chips that help the computer work properly.

**Q:**

(5)

**A:** Parts of a motherboard include power and data connectors, capacitors, heat sinks, and fans. There are also empty spaces for adding new parts or for anchoring them into a device.

Motherboard components include:

- Optical drives, such as DVD and CD-ROM
- Video and graphic cards
- Sound cards
- Hard drives (SSD or HDD)
- Processors (CPU)
- Memory sticks (RAM)

**Q:** DOES THE MOTHERBOARD SIZE MATTER?

(6)

**A:** It does. First of all, the motherboard has to fit into your computer chassis physically. And secondly, smaller boards imply fewer connectors and RAM slots. Motherboards come in three main sizes, from largest to smallest: ATX, Micro-ATX and Mini-ITX.

**Q:**

(7)

**A:** Most mainstream boards these days have four RAM slots, although different models offer from two up to eight. Remember that the amount of slots limits the amount of RAM you can install.

**Q:** HOW DO I TAKE CARE OF MY MOTHERBOARD?

(8)

**A:** Most motherboards outlast the rest of the computer parts, assuming they are well-maintained. However, you can pay attention to the things that could prematurely destroy your board. For example:

- High heat, usually due to inadequate cooling systems and fans
- Damage from impact, such as dropping your laptop
- Electrical damage, from spills or using incorrect power accessories

**Q:** WHAT WILL HAPPEN TO MY SOFTWARE IF I REPLACE MY MOTHERBOARD?

(9)

**A:** If you are replacing a motherboard on an existing computer, it won't affect your application software, but your Operating System (eg. Windows) license may be lost as the product activation code is stored in the board ROM memory. In this case, you may need to purchase a new license.

Pablo has these ideas about the motherboard. Let's see if what he used to think is *right*, or *wrong* or if it *is not mentioned* in the FAQs section.



- 1 right The motherboard helps to connect the hardware to the processor.
- 2 \_\_\_\_\_ The first motherboard was created in the 90s.
- 3 \_\_\_\_\_ If you remove the motherboard, the computer can still work.
- 4 \_\_\_\_\_ A motherboard is made of two layers.
- 5 \_\_\_\_\_ The size of the motherboard is not important.

Read the text again and **answer** these questions.



- 1 In which sizes may a motherboard come?
- 2 Can you recycle the motherboard's components when it does not work anymore?
- 3 How do you determine the RAM of a computer?
- 4 What may happen if the fan breaks?
- 5 Do I have to reinstall the programs if I change the motherboard?

Other important elements that you can add to the motherboard are *expansion cards*. Why are expansion cards important? What are they used for? How do they improve your computer's performance?

Let's see how much you know about the topic. **Complete** the first two columns of the KWL chart.



K	W	L
What I Know	What I Want to Know	What I Learnt

After completing the chart, **share** your ideas with the whole class.



**Read** the infographic  about expansion cards to learn more about them.

**Read** it again and  **match** the words/expressions in red to  their meanings below.

**1** add-ons :

Additional components that extend the capabilities of a computer system.

**2** \_\_\_\_\_ :

To customize or modify something to meet specific needs or preferences.

**3** \_\_\_\_\_ :

To improve or increase the quality, effectiveness, or value of something.

**4** \_\_\_\_\_ :

The maintenance of accurate and consistent data over time.

**5** \_\_\_\_\_ :

The result or display of a computer process or operation.

**6** \_\_\_\_\_ :

The quality of being adaptable or flexible.

**Go back** to the KWL chart that you completed earlier.

**Check** the first two columns, 

- were you correct in your assumptions?
- did you learn what you wanted to?

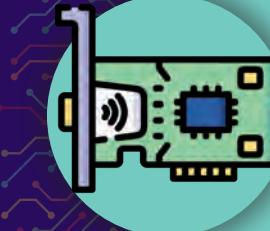
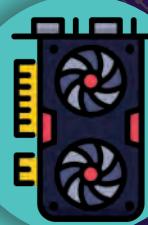
**Complete** the third column with what you learned from reading the infographic. 

# Understanding Expansion Cards

Expansion cards are crucial components in modern computer systems. As **add-ons** that connect to the motherboard, they extend the capabilities of a computer system. Expansion cards use expansion slots to connect with the motherboard.

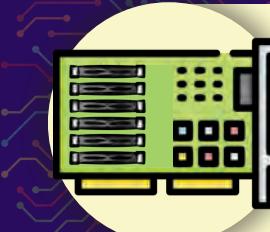
## Types and functions of cards

**Graphics Cards (GPU)** provide high-quality graphics and **enhance** visual output. GPUs are crucial for gaming, design, video editing and multimedia tasks.



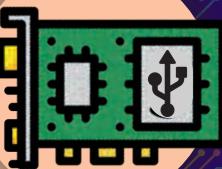
**Network Interface Cards (NIC)** allow network connectivity, enabling communication between computers and networks, both wireless and wired. NICs facilitate data exchange in both home and enterprise environments.

**Sound Cards** improve audio **output** and provide support for advanced audio features. They deliver superior audio quality and are crucial for gaming and multimedia applications.



**RAID Controllers** manage multiple disk drives to improve data storage reliability, performance, and capacity. RAID controllers ensure **data integrity** and availability at all times.

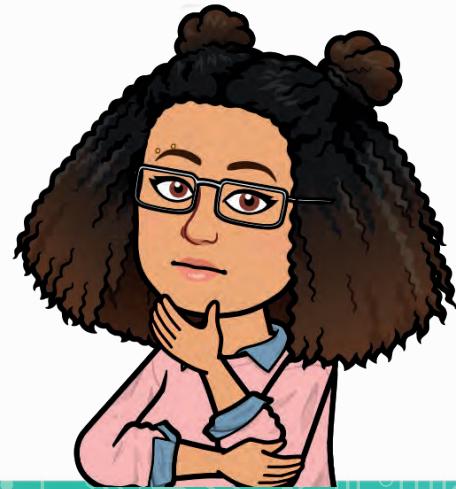
**USB Expansion Cards** increase the number of USB ports available to connect additional devices and peripherals. This enhances the computer's **versatility** and allows users to **tailor** it to their needs.



# 5 memories: RAM vs ROM

Let's go back to what we have learned about the *motherboard*.

Inés found this infographic about the topic. **Have a look** at it and **share** one piece of information that is new to you.



## MOTHERBOARD COMPONENTS

Icons from Flaticon.com

Component	Description
<b>CPU (Central Processing Unit)</b>	This is the brain of a computer, it contains all the circuitry needed to process input, store data, and output results.
<b>HARD DISK DRIVE</b>	or <i>HDD drive</i> , is the main storage device of the computer. It is used to store data permanently, like software and files.
<b>ROM (Read Only Memory)</b>	Memory chips that hold permanent data. It can't be overwritten, so it is used for the computer's startup programs.
<b>POWER SUPPLY</b>	It receives alternating current from an electrical outlet and converts it into the direct current needed to power the computer.
<b>SSD (Solid State Drive)</b>	SSDs store data using flash-based memory, which is much faster and smaller than a traditional HDD drive.
<b>HEAT SINK</b>	It draws away the heat generated by electronic components or chips.
<b>RAM (Random Access Memory)</b>	This is a short-term memory where data is stored as the processor needs it.
<b>COOLING FAN</b>	It is a small fan in a PC case that keeps the various parts inside from overheating.
<b>EXPANSION CARDS</b>	An expansion card is used to provide additional functions to the system or to upgrade an existing function, such as sound or video.
<b>EXPANSION SLOTS</b>	They are used to install various devices in the computer to expand its capabilities and performance.

This infographic contains very valuable information.

In pairs, **read** these error messages and **say** what could have happened.



- What do the error messages refer to?
- Are they hardware or software errors?
- How can you solve the problems?

1

:(

Your PC ran into a problem and needs to restart. We're just collecting some error info, and then we'll restart for you.

63% Completed

For more information about this issue and possible fixes, visit <http://windows.com/stopcode>

If you call a support person, give them this info: stop\_code ATTEMPT TO WRITE READONLY MEMORY

2

Force Quit Applications

Your system has run out of application memory.

To avoid problems with your computer, quit any applications you are not using.

Activity Monitor

Application	Memory Usage
Activity Monitor	54.1 MB
Google Chrome	412.8 MB
Finder	266.3 MB

3

NO INTERNET

Try:

- Checking the network cables, modem and router.
- Reconnecting to Wi-Fi.

ERR\_INTERNET\_DISCONNECTED

4

Hard Disk Error

Please run the Hard Disk Test in System Diagnostics.

Hard Disk # (xxx)

F2 - System Diagnostics

For more information, please visit: <http://www.hp.com/go/techcenter/startup>

5

Windows Media Player cannot copy the files because it cannot find a CD recorder

Check the connection between your computer and the CD recorder. If the Windows operating system does not recognize the CD recorder, use the Add Hardware Wizard to install the appropriate driver file, then try copying again.

[More information](#)

6

Program critical error

The instruction at 0x000000025CE42B referenced memory at 0x00000034D02F4. The memory could not be read.

Click on OK to terminate the program  
Click on CANCEL to debug the program

OK Cancel

As you can see, some of the error messages from the previous page refer to the computer's memory. Let's **dive** into this concept.



data Transfer.  
the motherboard  
facilitates data  
transfer between  
the CPU, RAM,  
storage devices,  
and expansion  
cards, ensuring  
distributes  
power from the  
CPU to various  
components,  
ensuring they  
receive the  
necessary  
electrical power  
function.  
the motherboard  
initializes and  
configures  
essential  
hardware  
components  
during the boot  
process, enabling  
the operating  
system to load  
and run.

## Chapter 5: Primary Memory

Primary memory is the most essential element of a computing system because computers can't perform simple tasks without it. Both types of memory (RAM and ROM) are important for the computer, but they serve different purposes.

We must not confuse ROM and RAM memories (or primary memory) with storage memory (or secondary memory) which uses hard drives, CDs, flash drives, etc. They are completely different things and we will work with the secondary types of memory in the next chapter.

### Types of primary memory:

- **Random Access Memory (RAM)** is used to temporarily store data that the computer is currently using or processing. RAM is volatile memory, which means that the data stored in it is lost when the power is turned off. RAM is typically used to store the operating system, application programs, and data that the computer is currently using.
- **Read Only Memory (ROM)** is used to permanently store data that does not need to be modified. ROM is non-volatile memory, which means that the data stored in it is retained even when the power is turned off. ROM is typically used to store the computer's BIOS (basic input/output system), which contains the instructions for booting the computer, as well as firmware for other hardware devices.

RAM	ROM
<ul style="list-style-type: none"><li>• Temporary storage</li><li>• Store data in MBs</li><li>• Volatile</li><li>• Used in normal operations</li><li>• Writing data is faster</li></ul>	<ul style="list-style-type: none"><li>• Permanent storage</li><li>• Store data in GBs</li><li>• Non-volatile</li><li>• Used for the startup process of the computer</li><li>• Writing data is slower</li></ul>

Read the text and **answer** these questions.



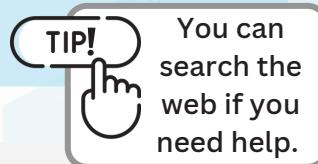
- 1 Which are the computer's types of memories?
- 2 What is the main purpose of primary memories?
- 3 What is the main purpose of secondary memories?

**Read the text again. Pay attention to the chart with the differences between ROM and RAM.**



Below, you have a list of problems potentially caused by a lack of ROM memory or insufficient RAM. **Copy** them in the correct place.

- Unpredictable system behavior.
- Inability to boot.
- Frequent program crashes.
- Hardware component errors.
- Inability to run demanding software applications.
- Slow performance.
- Limited device functionality.
- Inability to open large files.



A decorative page border featuring a vertical red line on the left side. Along this red line, there are ten white circular cutouts, evenly spaced. To the right of the red line, there are four horizontal blue lines, each spanning the width of the page. The top blue line contains the word "Rom" in a large, bold, dark blue sans-serif font.

This image shows a handwriting practice sheet. On the left, there is a vertical red margin line and a column of ten white circular guides. The word 'RAM' is written in large, bold, blue capital letters at the top. Below it, there are four sets of horizontal blue lines for practice, each consisting of a solid top line, a dashed midline, and a solid bottom line.

**Go back** to the error messages on page 21. Error messages 1, 2 and 6 **refer** to the computer's memory. **Get in pairs** and **decide** whether they are ROM or RAM problems. **Justify** your answers.

1

2

6

Do you know how to solve these three problems? If you don't, [search the web](#)!



What is the acceptable amount of memory for a computer to work effortlessly?  
**Get in pairs** and **discuss** the answer to this question. 



**Read** the following text and see if you were correct in your appreciation of the right amount of RAM.

## Memory matters: How much RAM do you need?

The acceptable amount of memory for your computer to work effortlessly can vary depending on the specific applications being used, as well as the system's hardware configuration. Generally, for everyday tasks and some multitasking, having at least 8 GB of RAM is a good idea. With this amount, you can easily run multiple programs at once, browse the web, and watch videos without any problems.

However, if you do more demanding tasks such as gaming, video editing or graphic design, you may need more RAM. In these cases, having 16 GB of RAM or more can ensure smooth and responsive performance, especially if you're working with big files or complex software.

In the end, the right amount of memory for a computer depends on how you use it. Think about what programs you use, how much data you work with, and how many things you do at once to know how much memory you need.



**Create** an acrostic with the word **MEMORY** using the words and information from the text.

The action or practice of playing video games.

G A

M  
E  
M  
O  
R  
Y



**Did you know?** ACROSTIC: arrangement of words in which certain letters in each line, usually the first, spell out a word. In this case, you spell out the word *memory*.



# 6 The outsides

Unscramble this word.

**SEPREAHLILRP**

Get in pairs and **define** the word you unscrambled.



For example: A computer is an electronic device that can store, retrieve, and process information.

How many examples of peripherals can you name?

**Time-allotted game:** Write down as many peripherals as you can in one minute.

Then, **share** your peripherals with the rest of the class.



## Did you know?

A formal definition consists of three parts:

1. The term (word or phrase) to be defined.
2. The class of object or concept to which the term belongs.
3. The differentiating characteristics that distinguish it from all others of its class.

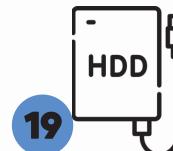
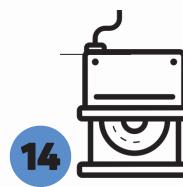
Source: Writing Definitions

keyboard

Here you have some peripherals. Did you include them in your list?



Match the images to the peripherals.



5 barcode reader

\_\_\_\_\_ keyboard

\_\_\_\_\_ card reader

\_\_\_\_\_ LCD projector

\_\_\_\_\_ expansion card

\_\_\_\_\_ microphone

\_\_\_\_\_ external hard disk

\_\_\_\_\_ mouse

\_\_\_\_\_ game controller

\_\_\_\_\_ multifunction

\_\_\_\_\_ printer

\_\_\_\_\_ graphics tablet

\_\_\_\_\_ optical drive

\_\_\_\_\_ headset



Can you tell me the function of each of these devices?

\_\_\_\_\_ pen drive

\_\_\_\_\_ printer

\_\_\_\_\_ scanner

\_\_\_\_\_ screen

\_\_\_\_\_ speakers

\_\_\_\_\_ touchscreen

\_\_\_\_\_ webcam

### Did you know?

A headset is a combination of headphone and microphone.



There are different types of peripherals.

**Read** this mind map to learn more.



## OUTPUT DEVICES

These devices receive data from the computer and present it to the user in a human-readable form.

## INPUT DEVICES

These devices send data or commands to the computer.

## TYPES OF PERIPHERALS

## INPUT/OUTPUT DEVICES

These devices are capable of delivering data to (output) and receiving data from (input) a computer.

## STORAGE DEVICES

These devices are used to store data externally from the computer.

**Look** at the list of devices on the previous page and **classify** them into the four types of peripherals: *Input*, *Output*, *Input/Output* and *Storage*.

## OUTPUT

## INPUT

## STORAGE

## INPUT/OUTPUT

Pablo needs to buy some peripherals online. **Read** the tips and help him find the best choice. In pairs, **add** two more tips to the flyer.



# 10

## Tips for Buying Peripherals @nline

### 1 Pay attention to specifications

Pay attention to details, such as connectivity options, resolution, response time, etc. to meet your specific requirements.

### 2 Compare prices

Look at a few websites to find the best price. Many times the same device costs less in another store.

### 3 Read user manuals

Read the user manual to know the device's features, setup process and troubleshooting steps.

### 4 Check reviews

Look for opinions from other buyers on review sites, such as blogs or vlogs.

### 5 Ensure compatibility

Make sure the peripheral you're buying is compatible with your computer's architecture and operating system.

# 10

### 6 Look for bundles

Buying things together, like a keyboard & mouse set, can help you save money.

### 7 Warranty matters

Check whether the device comes with a warranty in case of defects.

### 8 Buy from trusted places

Purchase from well-known shops to be sure you receive genuine products with a return policy and customer support.

**Listen** to five people talking about what is important for them at the moment of buying something. **Match** the speakers to the tips in the flyer.



**Speaker 1**

**Speaker 4**

**Speaker 2**

**Speaker 5**

**Speaker 3**

## Project The human body as a peripheral

**Work in pairs**

How do the human body and the peripherals relate?

**Create** a video presentation and **show** which part of the body may function as the computer peripheral.



# 7 In all sizes

These pictures represent the evolution of the computer. **Put** them in order.



Do you know how these computers are named?  
**Match** them to their names.



\_\_\_\_\_ Apple iMac G3 Colors

\_\_\_\_\_ Toshiba Portege 660

**1** \_\_\_\_\_ Analytical engine

\_\_\_\_\_ ENIAC

\_\_\_\_\_ Windows PC

\_\_\_\_\_ IBM PC

\_\_\_\_\_ UNIVAC 1

\_\_\_\_\_ Apple Lisa

\_\_\_\_\_ iPhone

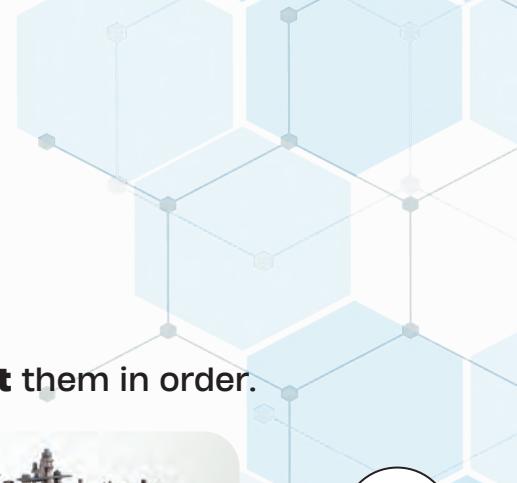
\_\_\_\_\_ Mini PC

\_\_\_\_\_ IBM System/360

**Read** the infographic on the next page  
 and **check** your order.



**Did you know?** Officially, "Lisa" stood for "Local Integrated Software Architecture", but it was also the name of Apple co-founder Steve Jobs' daughter. This computer was Jobs' "baby," as he championed its creation and believed it would revolutionize personal computing.

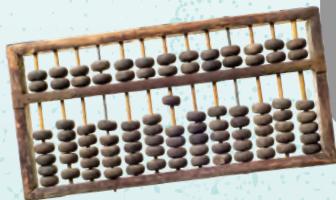


Pictures from: Wikimedia Commons, Flickr.com, Canva.com)

# A BRIEF HISTORY OF COMPUTERS

## EARLY DAYS

-3000 BC



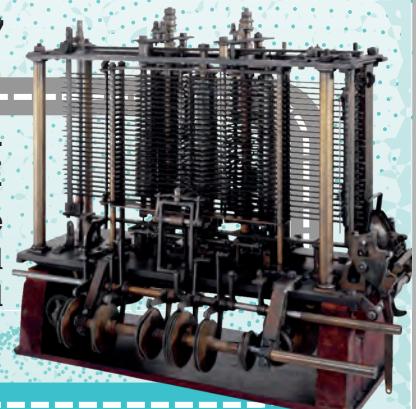
### ABACUS

The earliest known calculating tool.

1837

### ANALYTICAL MACHINE

Charles Babbage designed the Analytical Engine, a mechanical machine that became the general framework for present computers.



## 1ST GENERATION

1940s - 1950s

Vacuum tubes,  
large size,  
high power consumption,  
limited programming  
capabilities.

1943

### ENIAC

World War II facilitated the need for efficient computers. The Electronic Numerical Integrator and Computer (ENIAC), was the first general-purpose electronic digital computer. It was financed by the US Army.



## 2ND GENERATION

1950s - 1960s

1951

### UNIVAC 1

UNIVersal Automatic Computer 1 was the first general purpose electronic digital computer for commercial use. Computers of this era had memory and stored information in disks and tapes.



## 3RD GENERATION

1960s - 1970s

1964

### IBM System/360

Introduced in 1964, it was a family of mainframe computers that supported a wide range of applications and became one of the most successful computer systems in history.

Transistors, smaller size, lower power consumption, improved reliability, batch processing.

Integrated circuits (ICs), further reduction in size, increased speed and efficiency, time-sharing and multiprogramming.



## 4TH GENERATION

1980s - present

Microprocessors, chips, personal computers (PCs), graphical user interfaces (GUIs), networking.

1981

IBM PC

IBM introduces the IBM PC, launching the era of personal computing. It was based on a 4.77 Mhz Intel microprocessor and used MS-DOS operating system.



1983

THE LISA

Apple introduces the Apple Lisa, one of the first personal computers with a graphical user interface (GUI). GUI systems consist of graphic icons that are controlled by a pointing device (mouse).



1995

WINDOWS PC

Microsoft  
**Windows 95**



The release of Windows 95 in

August 1995, followed by Windows 98 and XP, marked the start of Windows' dominance in the personal computing market during the mid to late 1990s.

## 5TH GENERATION

present - future

Artificial intelligence (AI), advanced networking, Internet of Things (IoT), virtual & augmented reality (VR/AR)

2007

IPHONE

The launch of the iPhone marks the beginning of the smartphone era.



1998

APPLE iMAC G3

The Apple iMac G3, introduced in 1998, revolutionized desktop computing with its all-in-one design and vibrant, colorful casing.



2020s



THE MINI PC

The introduction of the Mini PC revolutionized desktop computing with its compact size and portability.

**Get into groups** and **find out** information about one of the previously mentioned devices. **Use** that information to **complete** the table below.



Device	Important information
Name	
Generation	
Features	
Significance	
Impact	
Other interesting data	

**Write** a short paragraph about the device that you chose.



**Present** your device to the class. **Include** pictures, videos, etc. in your presentation.



**Get in pairs and discuss** these questions:

- How have advancements in computing technology changed the way we live and work?
- How are the different computers and devices classified over time? What is used as a turning point between one stage and another?
- How do you think computers will continue to evolve in the future?



### Did you know?

Steve Jobs said the 'i' in Apple products (iMac, iPhone, etc.) stands for *'internet, individual, instruct, inform, and inspire'*. He also alluded to it referencing 'I' as a personal pronoun, and 'instruction' for education purposes.



One of the most recent developments in home computing evolution is the *Mini PC*.  
Read the text and **complete** the mind map below.



## The Rise of Mini PCs: Small but mighty

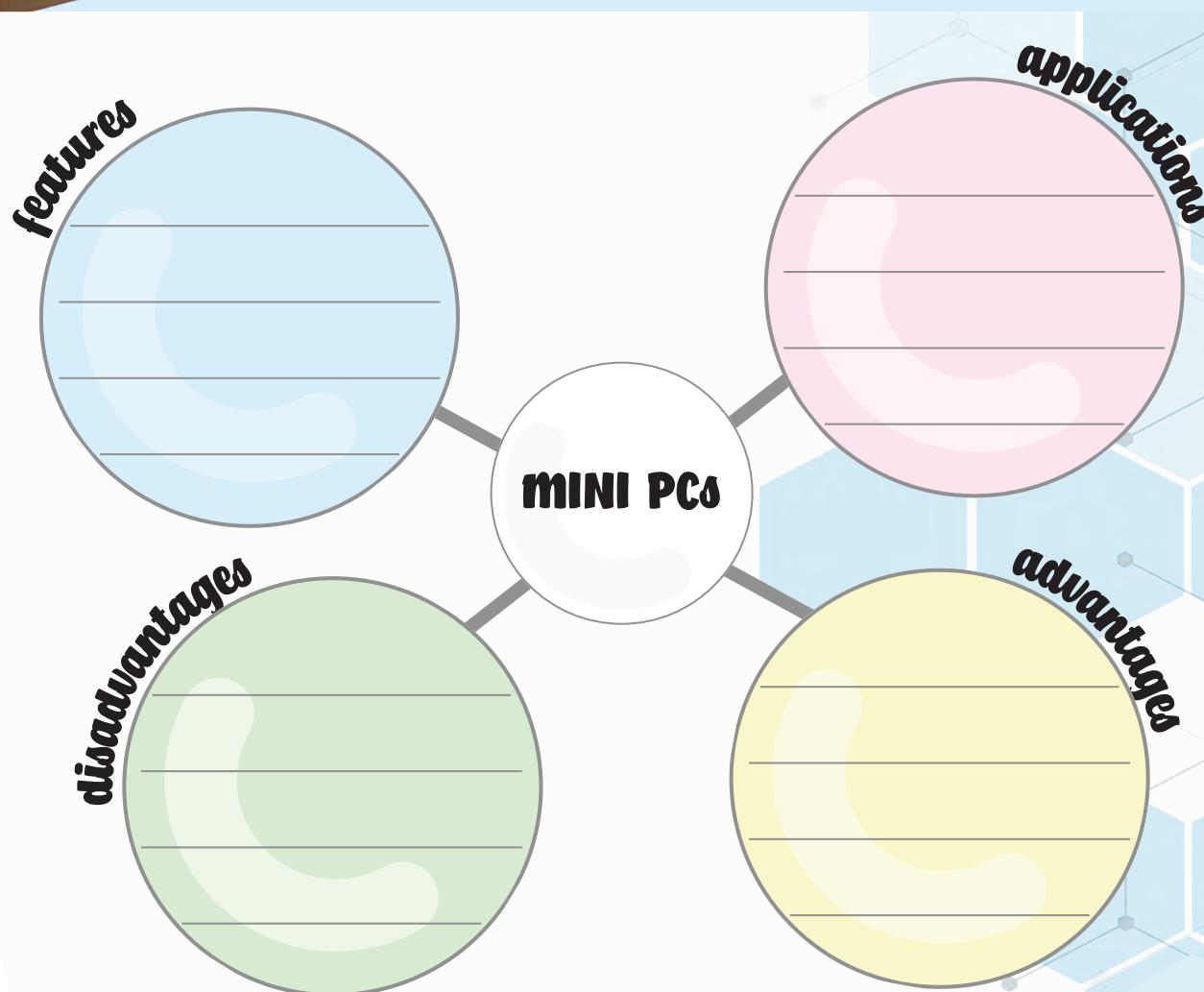
Mini PCs are a prominent tendency in today's technological landscape, offering a compact and robust computing solution. They may fit in your hand but are powerful enough to handle most tasks efficiently.

Mini PCs offer powerful hardware configurations, including efficient processors, generous memory and storage capacity. They also have different connecting ports such as USB, HDMI, DisplayPort and Ethernet, which allow users to connect peripherals, displays, and network devices as needed. Moreover, they consume less power, which reduces energy costs and minimizes environmental impact.

However, Mini PCs have their drawbacks too. Their compact size limits hardware upgrades and can cause overheating.



In conclusion, Mini PCs represent a significant advancement in desktop computing. With their small size, versatility, power, and energy efficiency, they are a great choice whether you are a gamer, a content creator, a business owner, or a student.



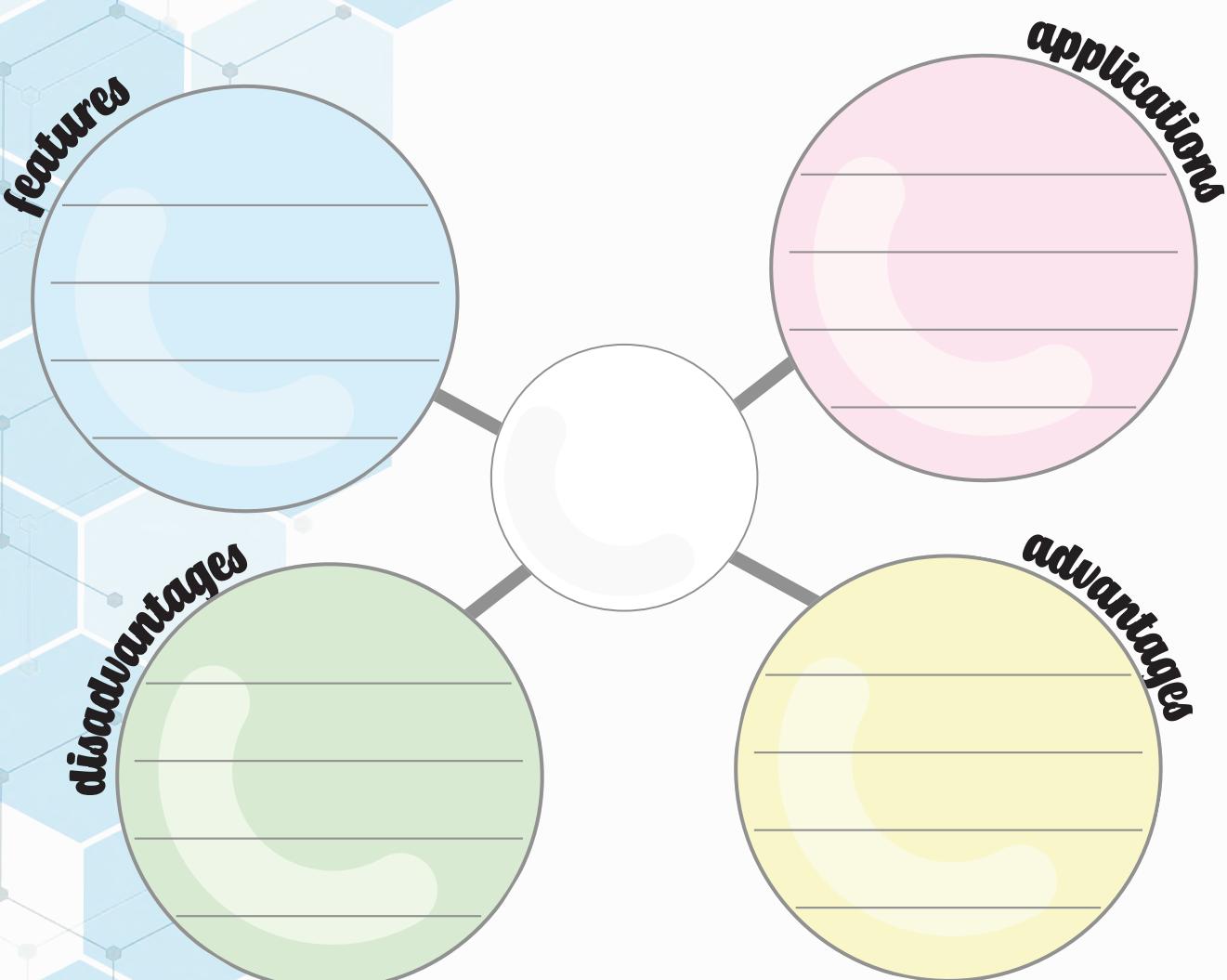
## Project A new device everybody should know



In groups, **research** a new device that has not been previously discussed. **Develop** a presentation to introduce this device to the class.

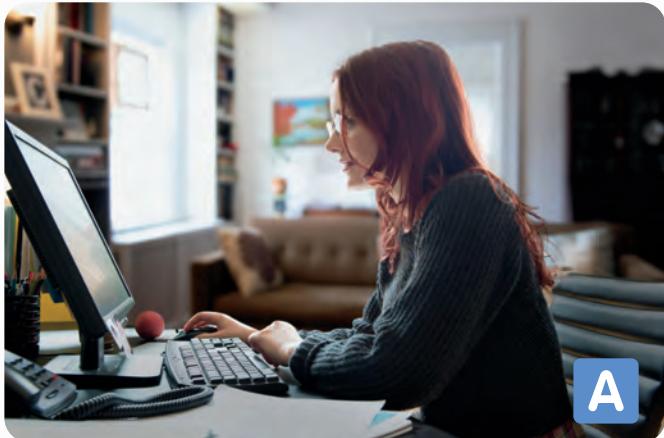
### Instructions

- **Write** a short review of the device, highlighting its features, applications, benefits, and potential drawbacks. **Complete** the mind map to organize your information before you write. You can use the text about the MiniPCs as a model.
- **Create** a poster or any visual support to accompany your presentation.
- **Check** the set of rubrics (at the end of the book) on the project presentation to assess whether the presentation you created is OK or not.
- **Share** your presentation with the class.
- Each group will **take notes** on the devices presented by other groups.



# 8 Desktop PCs

Look at the pictures. How would you describe the differences between the devices?



Emma found an interesting article in a tech magazine titled *“Desktop vs. Laptop, The Great Debate”*.

What is your opinion about the title of the article?

Discuss your ideas in pairs.



Read the article and match the five missing subtitles to the correct paragraph.



Upgrading • Security • Building your own • Repairing • Ports

# DESKTOP VS LAPTOP



## The Great Debate



When deciding on your next computer, it's essential to consider a few key factors. Let's talk about ten important points to help you decide between a desktop and a laptop.

1

## POWER

Desktop computers are usually more powerful than laptops because they have more space for parts. This makes them great for things like gaming or editing videos. But if you are using your computer for basic tasks like browsing the internet or writing documents, a laptop will do just fine.



2

## PRICE

Desktops can be a better deal for the same performance level, but it is not always the case. Prices can vary depending on what you're looking for. Still, if you are looking at high-end computers, desktops often cost less than laptops with similar features.



It is easier to upgrade a desktop computer because you can easily add new parts inside. With laptops, it is a bit trickier and sometimes even requires professional help.

3

If something goes wrong with a desktop, fixing it is usually simpler than with a laptop. Desktop parts are easier to access and replace. Opening a laptop without damaging anything can be difficult, and individual parts are not usually replaceable.



4

5

## CONTINUOUS OPERATION



Desktops can be left on continuously, making them ideal for tasks like running programs overnight or operating as remote servers. On the other hand, while laptops can technically be left on indefinitely, they are not designed for prolonged use.

6

Laptops are convenient for carrying around, but they are also prime targets for opportunistic thieves,

mainly in public spaces. On the other hand, desktops can be difficult to transport, so they are typically only stolen by determined individuals.



7

## NOISE

Noise levels in computing are often overlooked, but they can impact user experience. Desktops are usually quieter because they have more space for cooling systems, whereas laptops may generate noticeable fan noise, particularly during intensive tasks like gaming or video rendering.



8

You can connect as many devices as you like to desktops thanks to their numerous ports. This degree of freedom is not available with laptops, there is a limit to the number of ports that can be installed due to space limitations.



9

## SCREEN

While laptops have made significant advances in screen technology, desktops still have an advantage in display size and quality. A bigger monitor provides a more immersive and productive computing experience, especially for multitasking or detailed visual work.



Building your own desktop computer from scratch gives you the best chance to customize it exactly how you want.



You get to pick the parts you like and tweak settings to make it work even better. Laptops let you make some changes with pre-set options, but it's nothing compared to what you can do with a desktop if you're into DIY projects.

10

In the end, whether you choose a desktop or a laptop depends on what you need it for, how much you want to spend, and what you're comfortable with. Desktops are great for power and customization, while laptops are more convenient for on-the-go use.

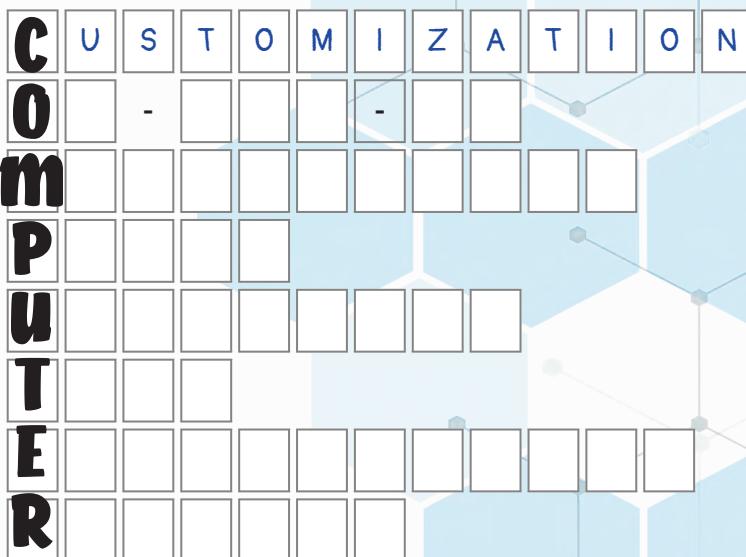
**Re-read** the text and **underline** possible reasons to be in favor or against one or the other.



**Complete** the acrostic with words from the article.



<b>C</b>	• Adjusting settings and features to suit individual preferences.
<b>O</b>	• Designed for use while traveling or away from a fixed location.
<b>M</b>	• Tasks performed to keep a system in good working condition.
<b>P</b>	• Connection points for peripheral devices.
<b>U</b>	• Improving hardware or software to enhance performance.
<b>T</b>	• Short for "technology," referring to advancements in electronic devices.
<b>E</b>	• Improvements made to enhance or expand capabilities.
<b>R</b>	• Actions taken to fix or restore functionality to a system.



The school magazine wants to know your opinion about desktops and laptops.

**Write** an opinion essay to respond. Before doing this, **read** this essay about *landline phones vs. smartphones* and **identify** its different parts.



1

In today's world, staying connected is important, and we have two main types of phones: smartphones and landline phones. **In my opinion**, while both types of phones have their pros and cons, it is obvious that smartphones have revolutionized communication.

Both types of phones have advantages. Landline phones are reliable **because** they always work, and they are less expensive than smartphones. **On the other hand**, smartphones offer a variety of functions, allowing users to make calls, send messages, and use applications for various purposes. **Additionally**, smartphones serve as powerful tools for accessing information, organizing tasks, and managing daily routines.

**However**, there are problems too. Landline phones can only be used in one place, limiting mobility and flexibility.

**Moreover**, the infrastructure they require is expensive, especially in rural or remote areas. **In the case of** smartphones, they are continuously evolving, **as a result**, people tend to change them frequently. This can be problematic **because** discarded lithium-ion batteries can harm the environment.

**In conclusion**, smartphones have changed the way we communicate and do things. They are useful and convenient, and **even though** they have some problems, **I believe** that they are still the best choice for most people.

2

3

4

OPENING

BODY

CLOSING

**Complete** the blank spaces in the layout with the words provided.



- **advantages** •
- **restate your opinion** •
- **disadvantages** •
- **state the topic and give your opinion** •



Pay special attention to the two SOS Boxes.

## Useful expressions

to give opinions	In my opinion, . . . / I think that, . . . / I believe that, . . . / Personally, . . .
to add points on the topic	also / too / furthermore / moreover / in addition / additionally
to describe reality	in fact / as a matter of fact
to give examples	for instance / for example / like / such as
to express contrast	but / however / on the other hand
to express similarity	similarly / in the same way
to describe results	as a result / as a consequence / for this reason / so
to give reasons	because / since / due to
to conclude	to sum up, / in conclusion, / finally, / in short



A paragraph should have...

- a) a **topic sentence** to state the main idea of the paragraph.
- b) **supporting sentences** to develop the topic sentence by giving reasons, details and examples.
- c) a **concluding sentence** to summarize the main idea of the paragraph (not always necessary).



Example:

When talking about a computer's price, people usually say that laptops are more costly than desktops. However, this is not always true. The price of any computer, regardless of whether it is a desktop or a laptop, is determined by the different specs the device contains. A laptop computer may be less expensive if it is not the latest one, and a gamer desktop can cost thousands of dollars. if it is not the latest one, and a gamer desktop can cost thousands of dollars. Anyway, when we are talking about similar specs, a desktop costs significantly less than a laptop.

It's time to **jot down** ideas to start drafting the paragraphs.



**Get in pairs** and **share** your ideas with your partner to receive feedback on what you want to write and vice versa.

After having all this information, you are ready to **write** the essay. Once you finish, **share** it with a classmate to check your work is correct.

The Northern Star  
School Magazine

Do you want to write for the school magazine?

Write an essay for the school magazine.  
Title: "Are tablets better than cell phones?"  
Write between 100 and 120 words.

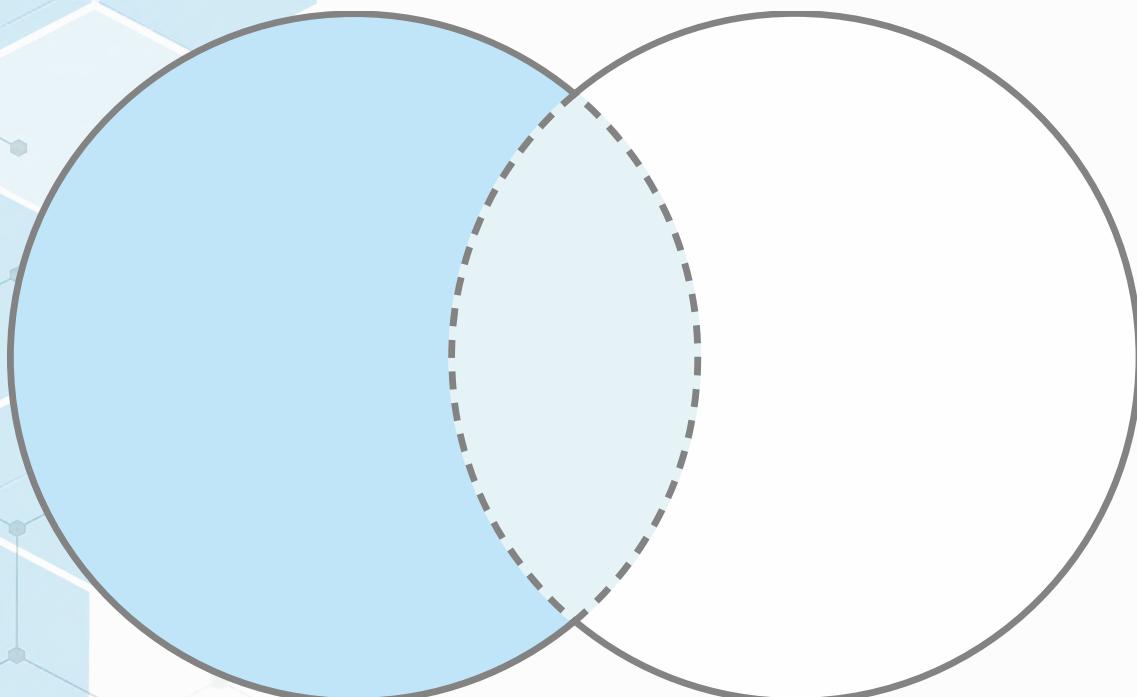
# 9 wherever you go

**Look** at these images. What objects do you own? Why did you buy them? What do they have in common? 



**Choose** two different portable devices from the images displayed.

**Create** a Venn diagram to *compare and contrast* the main characteristics of the selected devices. **Consider** certain aspects such as size, weight, processing power, storage capacity, etc.



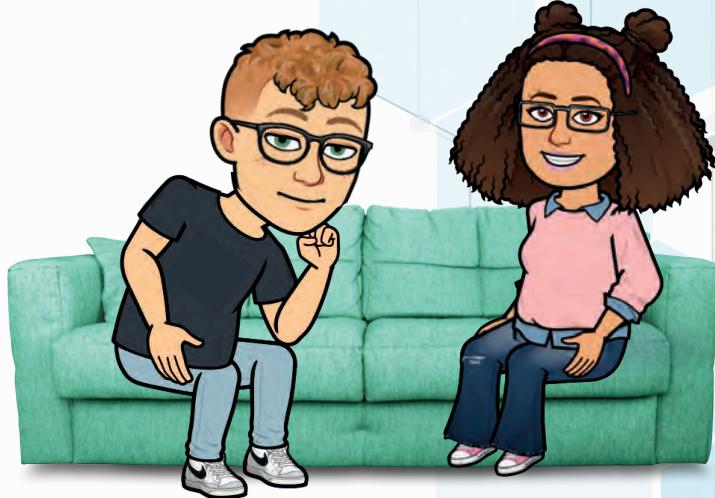
Freddie and Inés watched a film about vintage devices, such as old computers and telephones. After that, they started to talk about the benefits of portable devices.

**Write** a short paragraph explaining which device you think would be more suitable for different scenarios (e.g., work, travel, or entertainment).



For example:

*To play video games, I prefer my old desktop computer because the connection is more stable and it has more memory than my smartphone or portable computer.*

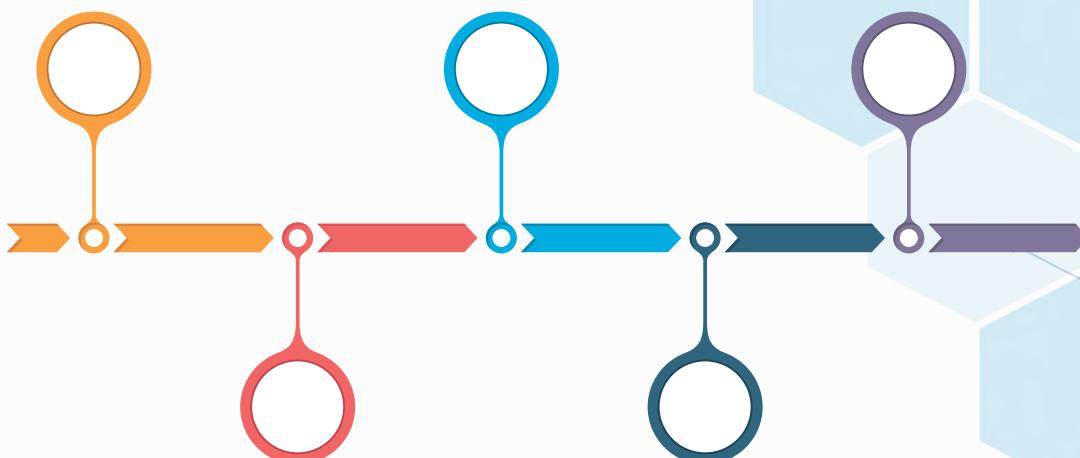


Freddie and Inés need to create a presentation about *the evolution of portable devices* for their class. Help them.

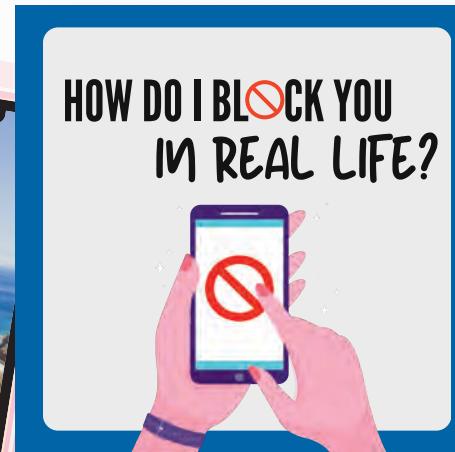
### Group work



- **Select** one of the portable devices previously presented in the lesson.
- **Research** and **create** a timeline highlighting the major technological advancements and changes in design for that type of device over the last decade.
- **Include** key *innovations, improvements, and notable models*.



It's time to reflect on how these changes have influenced the different devices' portability, functionality, and user experiences.  
How would you **evaluate** your user experiences with portable devices?  
**Discuss** these ideas.



What is the correct device for you?



- **Pick** a portable device that interests you.
- **Look for** online reviews, users' feedback, or accounts on that device.
- **Summarize** the common positive and negative points highlighted by users.
- **Write** your opinion on whether you would consider purchasing the chosen device based on the gathered information.

### Positive points

### Negative Points

Time to share!

**Get into groups** and **share** your ideas.



# 10 choosing the right computer

**Look** at these pictures. **Make** predictions about what each person's profession might be. **Use** the expressions in the SOS box to help you.

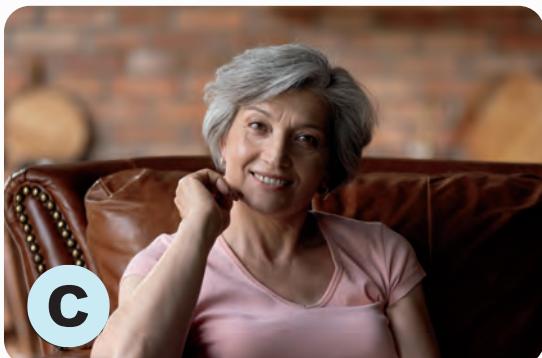
**A**



**B**



**C**



**D**



In my opinion, ...

I think, ...

**SOS**

**Box**

Maybe, ...

I believe, ...

From my point of view, ...

My impression is that ...

I have the feeling that ...

I have no doubt that ...

I would say that ...

**Get in pairs** and **consider** each person's potential relationship with technology. **Discuss** why a technological device might be relevant for each individual. **Take notes**.

**A**

\_\_\_\_\_

**B**

\_\_\_\_\_

**C**

\_\_\_\_\_

**D**

\_\_\_\_\_



**Read** the four texts and **match** the posts to the pictures on the previous page.

**Picture:**

**Javier**

I work long hours and I need to be in contact with people. I usually have virtual meetings and I spend time reading and sending emails. Having a portable device is essential for me because I used to have a desktop computer but I suffered from backaches. I don't like to take painkillers so it was not very useful for me. I am looking for another device, which one should I buy?

School principal, 38.

**Picture:**

**Sergio**

I recently moved to a smaller house so I had to adapt my furniture to the new spaces. This means I had to sell my old bookcase as it was extremely big. Needless to say, I was so upset because I had to sell most of my books since they took up too much space. This situation made me start buying e-books. I truly enjoy the cover art and the smell of a new paper book but I understand I also need more space. Also, I love traveling and reading while I'm on the plane.

School teacher, 31

**Picture:**

**Marcela**

My grandson Agustín lives in Rivera and is turning 10 soon. He usually visits me during the school breaks which means traveling down to Montevideo. I'd like to buy him a device to get entertained when he visits me so he doesn't get bored. He likes watching cartoons and playing video games. Also, I'd like to get him something small and easy to carry.

Clothes shop owner, 53.

**Picture:**

**Martha**

I am a retired woman and usually spend a lot of time at home. I just use the computer to watch knitting tutorials online. I prefer to have a desktop PC because it can be hard for me to move around the house with a portable computer. It might also get kind of dangerous so I would rather have it connected into the same place all the time. My grandchildren can help me plug it in and I just need to press a button."

Housewife, 65.

**Go over** the texts again and **make** suggestions about the type of device they should buy. **Give** reasons for your recommendations.

**Get into groups** and **share** your ideas.

I think he/she should (buy/get/etc.) ...  
I suppose he/she could...  
How about ...?  
He/She should...  
He/She should consider (buying/getting, etc.)...  
What if he/she (buys/gets/etc.) ...?  
A good idea would be for .... to (buy/get, etc.) ...



What are the pros and cons of buying one device or another?

It is important to compare the different options to know more about the perfect device for you. **Surf the net** and **look** for information to **complete** this chart.



	TABLET	LAPTOP	DESKTOP PC	eBOOK
WEIGHT				
STANDARD SCREEN SIZE				
STANDARD MEMORY SIZE				
PRICE				
USES				
POSITIVE FEATURES				
DRAWBACKS				

In your opinion,  
which one is the best device?



### Conversation circle

- Sit in the middle of the circle and talk for one minute about the best device for you.
- After a minute, the teacher will clap hands and another group of volunteers will keep discussing the topic.
- Everyone needs to get involved!

I think, ...  
Maybe, ...  
I believe, ...  
In my opinion, ...  
I agree with ... because ...  
I don't agree with ... because ...  
From my point of view, ...  
My impression is that ...  
I have the feeling that ...  
I do not doubt that ...  
I would say that ...

**SOS Box**



**TIP!**

When the students are discussing in the conversation circle, the rest of the class must remain silent.



In this unit, I learned that...

Something I need to revise is...

my favorite part of this unit was...

I felt...



# UNIT 2

## *Input devices*



# 1 Input devices: What for?

Pablo's teacher posed this question.

**Answer** the question on a strip of paper.



How would you define input devices?

---

---

---

---

---

**Stand up and exchange** papers. When you exchange papers, **mention** an input device.

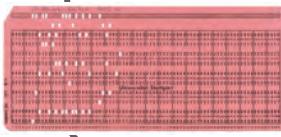


When the teacher claps hands, the students **get into groups** of three. Each group reads the definitions and grades them from 1 to 7, being 7 the highest grade.

**Repeat** the activity two more times and then **add** the numbers up. You need to **read** aloud *all the strips of paper with 21 points*. If there is no strip with 21 points, the one/s with 20 is/are read, and so forth.

## Did you know?

The very first computers only accepted "punch cards" as input. Computer scientists had to carefully punch out their instructions and then feed the cards into the computer.



A punch card used in the 1970s to input Fortran programs into an IBM mainframe computer.



*Input devices are everywhere and they have sometimes unexpected uses.*

Pepe is Pablo's grandfather. **Read** the following situations.



- 1 Pepe is coming up with a wishlist for computer accessories to help Pablo in his studies.
- 2 Pepe is setting up a system to check how his garden is doing. He wants to know if the pH of the soil is okay, if the plants have enough nutrients, or if the humidity is ok. He will use a good combination of input devices.
- 3 Pepe is having some security problems at home. He is finding information to set up a home security system. He is making a list of the hardware he will need to buy.



**Match** the previous situations with the list of input devices Pepe, Pablo's grandad, needs to set up some projects he has. Write **1**, **2** and/or **3**.

- 3** door/window sensors
- external hard drive
- headphones/headsets
- humidity sensor
- keypad or biometric scanner
- keyboard

- mouse
- motion sensor
- nutrient sensor
- security camera
- soil pH tester
- weather station

**TIP!**

You can search the web if you don't know any of these terms.



**Get in pairs** and **share** your ideas with your partner. **Justify** your choices.



#### ASKING FOR OPINION

- What do you think about ...?
- Do you agree with me?
- What's your opinion about ...?
- What about you?

#### DISAGREEING

- I'm afraid I disagree.
- I'm sorry but I don't agree with you.
- I agree but up to a point.
- I see your point, but...

#### OFFERING OPINION

- I think (that) ....
- In my opinion....
- The way I see it ....
- From my point of view, ....
- As far as I'm concerned....

#### AGREEING

- I agree. / I totally agree.
- I think so.
- You are right.
- I get your point.

**SOS**  
**Box**



**Read** the text about Pepe's garden and **check** your previous answers.



My grandfather Pepe is a retired botanist and has always had a knack for tools, so he was able to transfer that ability to computing systems. He loves gardening and wants his garden to be healthy, so we used modern technology to our advantage. I helped him set up a computer system at home to check how his garden is doing.

We installed a series of sensors in Grandpa's garden, each connected wirelessly to a central computer. We buried soil pH sensors to see if the soil's acidic levels are ok, and nutrient sensors give us real-time data to decide whether there's a need to use fertilizers. We also placed humidity sensors at different heights to measure how much water is in the soil and the air, so Grandpa knows when to water his plants.

We also installed an ambient weather station on the house's roof. This weather station gives information about the temperature, rainfall, wind speed, and other weather conditions. It helps Grandpa understand the weather and take care of his plants better.

Grandpa can access all this information on an easy-to-read dashboard installed on his kitchen wall. With a few taps, he can see reports, set alerts for critical changes, and even turn on the watering system if the soil is too dry. Thanks to this combination of gardening knowledge and modern technology, Grandpa is happy and his garden is healthy.



**Read** the text again and **complete** the chart below.



Device	Use	Location	Data Provided	Why it's Important

# Groupwork



*Input devices help solve any situation.*

## 1 Identify a problem and list input devices.

- Think of a real-world problem you want to solve.
- Make a list of input devices you would use to solve this problem.
- Add a few extra input devices to the list that are not necessary for solving the problem.

## 2 Share and evaluate.

- Share your problem and the list of input devices with another group.
- The other group will identify the unnecessary input devices ("intruders") in your list and you will identify the *intruders* in the other group's list.
- Discuss why the identified devices are not necessary and why the other devices are essential for solving the problem.

These devices might be costly, so finding the most inexpensive devices is a great strategy you need to acquire.

Pepe needs help to buy the input devices for his projects.

**Get in pairs** and look for the best place to buy them and **choose** the most convenient e-store to purchase the devices.



Device	Best price	e-store URL

## Time to wrap up!



🤔 What other input devices have you used?

🤔 Can you think of other output devices?

🤔 Can you predict what new input devices will we have 20 years from now?

🤔 What's a new output device that you could invent?



# 2

# Why is every part important?

**Name** the parts of the body you know.



If you were to compare your body and a computer, which parts of the body could you label as input devices?



## Groupwork



**Get into groups** and **share** answers.

Which of these “human” peripheral devices is the most important? Why?  
It’s time to **compare** the different parts of the computer with your “human” devices.



**Match** the following human parts with the following peripheral devices.

Which ones can be considered input devices?



<input type="checkbox"/>	eyes
<input type="checkbox"/>	mouth
<input type="checkbox"/>	hands
<input type="checkbox"/>	ears

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

eyes	<input type="checkbox"/> speaker / printer
mouth	<input type="checkbox"/> mouse / keyboard
hands	<input type="checkbox"/> webcam
ears	<input type="checkbox"/> microphone

**Get in pairs. Create** an infographic with the information that shows the connection between parts of the body and parts of the computer.

Example:

### **SPEAKER / PRINTER = MOUTH**



These are considered to be output devices because the information comes out of the computer. However, through the printer, you can scan documents and this output device could be seen as an input device.



**Create** similar sections about the rest of the mentioned devices and **design** your infographic!

**Share** your work with the class.

Sometimes, there are problems with particular devices.

**List** some common issues with:

- screens: \_\_\_\_\_
- printers: \_\_\_\_\_
- keyboards: \_\_\_\_\_
- mouses: \_\_\_\_\_
- speakers: \_\_\_\_\_

- Have you ever had any of these problems?
- What did you do to fix it?
- Did you need help from someone else?



**Choose** one of the problems listed above. **Discuss** the steps you would take to troubleshoot and fix the problem.



#### Useful language:

- First, make sure the power is on.
- Check if the device is properly connected.
- Try restarting the computer.
- Check if the drivers are installed.
- Look for error messages.

Do you know "Manos de héroes"?



Manos de Héroes is an NGO whose main objective is to provide handicapped people with hand prostheses.



MANOS DE HÉROES

**Read** the accounts and **watch** some of the videos on the website. **Choose** one and be **ready** to share it with the rest of the class saying why you chose it.



**Explore** their social networks and **find out** more information about this amazing foundation!

# Search

<https://www.manosdeheroes.com/> 



Image from <https://mediospublicos.uy/>



# 3 Just click

What can you see in the picture? Have you ever met someone online? Was it a good experience?



Emma's friend met her boyfriend online. They are reading about this topic and sharing their opinions about it.

Let's **read** the text!



Meeting people online is very common, and often works out just fine. However, there are risks when meeting someone in person for the first time after connecting online. Safeguard yourself and your private information from potential criminals. If you want to safely meet someone you've met online, keep your first few meetings public and brief and inform a trusted person about your plans to meet that individual.

The text mentions some risks of meeting someone online, what do you think these risks are?

**Read** the introduction of the magazine article in the following page and **choose** the correct subtitle.

- a Friends Who Met Online Share Their Amazing Stories
- b People Who Met Online Share Their Funny Travel Experiences
- c Married Couples Who Met Online Share Their Awesome Stories
- d Couples Who Met Online Share Some Drawbacks They Had



# Just click

#WORKINGURUGUAY



A lot of us love technology, and for good reason - it makes our lives easier, connects us with friends near and far and entertains us to no end. Online dating is the perfect marriage between technology and romance. Back in 1995, only a few percentage of single American adults had Internet - and even fewer dating profiles. These days, nearly nine-in-ten Americans have internet connection. That's a pretty impressive change. Over the years, any stigma of saying, "we met online" has evaporated. So we spoke to three awesome couples who met each other online and got hitched (or are engaged to get married).

According to the text, is online dating popular nowadays? Do you agree?

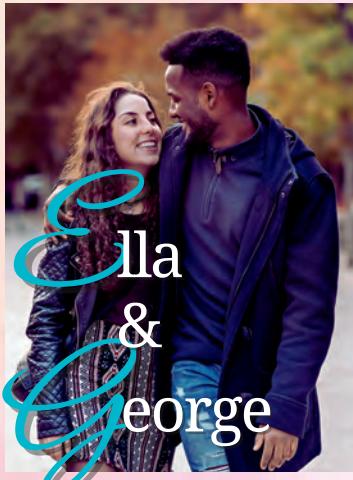


Listen to a woman talking about how she met her couple and choose the correct options.



- 1 2013 / 2003 / 2014
- 2 cities / places / sites
- 3 people / friends / relatives
- 4 funny / scary / silly

- 5 acquaintances / relatives / friends
- 6 thriller / western / horror
- 7 moonlight / midnight / midday
- 8 months / steps / days



Ella: My now husband George and I met on Match in June 2011 and have been married since September 1. I was nervous to meet him, but not necessarily because he was from the Internet. I've made a lot of really good friends from different 2. on the Internet, going back to my high school and college days. It's something that I used to be really embarrassed to admit to 3., because meeting people on the Internet seems like a weird or, 4. thing to a lot of people! I think the stigma around that has changed a bit, as people connect with others more and more via the Internet. When we tell our story, especially to older 5., we often just say that we met 'through friends.' It's easier than explaining how we met on the internet.

We'd been following each other for a while and had chatted on Match before because we had a lot of similar interests - mostly obscure 6. movies, which really brought us together. I was living in Brooklyn at the time, and George was in Illinois. But he had friends who lived in New York, so when he was coming to visit them, he told me he would be in town and I asked if I liked to meet up! We decided to meet at a 7. movie at Spectacle Theater in Williamsburg. We saw the movie, stayed at a bar talking closing time and that was that! We decided quickly after that night that we wanted to be together, and within a few 8. George had moved across the country to my city.

Listen to a second couple and fill in the blanks.



William: "My wife and I met on Zoosk in 2013 and two years later we had our first child. We're both 1 \_\_\_\_\_, but in different fields and hospital networks. She's a bariatric nurse manager. I'm a pediatric critical care nurse. She's from 2 \_\_\_\_\_, Colorado and I'm from the suburbs of Cleveland, Texas. I think I might still have some of our first 3 \_\_\_\_\_. She was about to give up on Zoosk and I thought she was out of my league, but I tried anyway. We got engaged in 4 \_\_\_\_\_ and married in December the same year. Funny enough, a few hours after we got engaged and were headed to our engagement 5 \_\_\_\_\_, a person she had once dated on Zoosk called her to see if she wanted to go out."

Daisy: "I never would have met William if not for Zoosk. I am certain our paths never would have crossed. Meeting him was worth every 6 \_\_\_\_\_ date I ever went on - and I've been on quite a few!"



Read the text about Liam and Olive and look for words to match the references.

Then, complete the crossword in the following page.



Liam: "Olive and I went on about 14 to 25 online first dates over a few years using different sites. The app we used to meet, Bumble, connects you to people in your extended Facebook friend network. I was amazed by how many connections we had—over 40 from almost every part of my life! That made Olive stand out. Her profile was funny, smart, and serious when it counted, which made me interested. We quickly told everyone we met on a new 'dating application.'"

Olive: "Liam's profile was shorter than mine, but the many connections we shared said a lot. When we started chatting, I was impressed by something special in his writing. His voice came through clearly, and I couldn't wait to meet him in person. Our first date was a happy hour cocktail that turned into pizza. On our second date, Liam planned a perfect evening—a fancy dinner at a new restaurant followed by karaoke. I have been in love ever since. Liam proposed in 2014, and we got married the next year."

Liam: "Online dating is very common now, and the stigma from a decade ago is gone. Everyone I know who has been single in the last five years has used a dating site or app. Apps make dating easy. We lived a few blocks apart, went to the same places, and somehow never met. It took a dating app to bring us together, and we're so happy we found each other!"

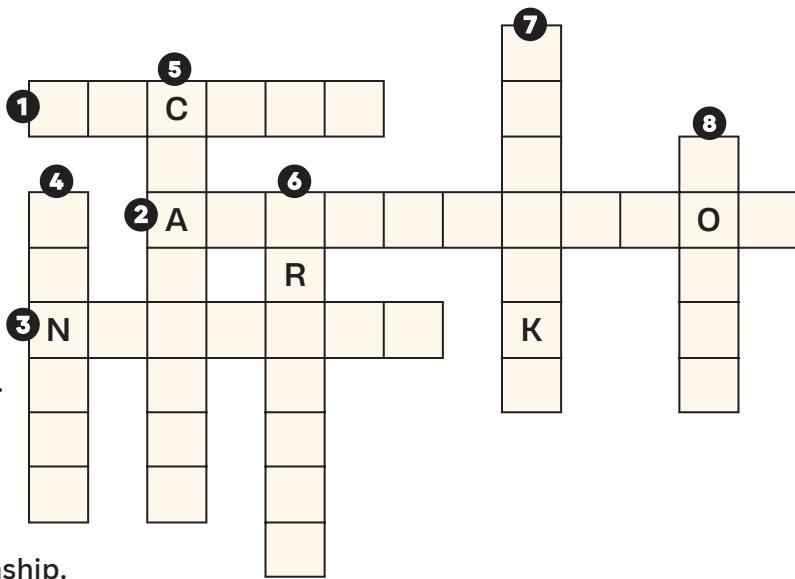
# Crossword

## Across →

- 1 A period of ten years.
- 2 Software program, often called an "app".
- 3 A group of interconnected people or devices.

## Down ↓

- 4 Status of not being in a romantic relationship.
- 5 Engaging in casual online conversation.
- 6 Online summary of a person's details and interests.
- 7 Activity of singing popular songs with a microphone.
- 8 Sound produced by vocal cords, used for speaking or singing.



**Read** the three stories and write the name of who made each statement.



- 1 \_\_\_\_\_ thought his/her partner was too good for him/her.
- 2 \_\_\_\_\_ was impressed by the way the other person was chatting.
- 3 \_\_\_\_\_ has made a lot of friends from the internet.
- 4 \_\_\_\_\_ claims that meeting someone by using a dating site is very common nowadays.
- 5 \_\_\_\_\_ had a lot of bad dates before meeting his/her spouse.
- 6 \_\_\_\_\_ really loved that they share their passion for the same types of films.

**Write** a paragraph expressing your opinion on meeting somebody online.



**Include** at least six of the words from the crossword. **Use** phrases from the SOS Box to help you.

Personally, I think...  
 From my point of view...  
 From my perspective...  
 As far as I'm concerned...  
 I'd like to point out that...  
 Generally it is thought that...  
 Some people say that...  
 It is considered that...  
 It is generally accepted that...  
 On the one hand... On the other hand...  
 That's one way of looking at it, however...



# 4 Type

Inés has bought something really techy.

She wants you to guess what she bought. She gives you some hints.

- It is an input device.
- You can tell the computer what to do by using it.
- You can also write your name by using it.
- You cannot physically touch it but you can use your fingers to use it.
- It is a modern replica of something that was created more than 150 years ago

What is it? **Look** at the pictures to have more clues.



(Image by Wikimedia Commons - Freepik.com)

What differences do you see between a projection keyboard and a physical one?

**Complete** the chart.



projection keyboard	physical keyboard

**Rush** to the board and **write** the differences between one and the other.



**Read** the paragraph about the projection keyboard and see if you were correct.



## The Projection Keyboard

The *projection keyboard*, also called virtual or laser keyboard, is a small device that projects a keyboard layout on a flat surface using laser light. Users can type by tapping the lighted keys. Its main characteristics include portability, as it is often very small, and the ability to connect wirelessly to devices via Bluetooth. Canesta, a company specializing in 3D sensing technology, created and introduced it in 2002. This cool gadget is particularly useful for mobile and compact devices.

**Discuss:** Why is the projection keyboard also called virtual or laser keyboard?



**Look** at these keyboard pictures and order them chronologically.



### Did you know?

In the first typewriters, the keys were arranged to slow the typist down.



**Surf the net** and check whether the order you established was right or not.



**Write** a short paragraph about three of the previous keyboards. You can use the projection keyboard text as a model.



Include the following information:

- Name
- Main characteristics
- Functions and features
- Creator
- Year



Have you ever heard the name August Dvorak?

### Useful language



- The device is equipped with...
- This device is ideal for...
- One of its main advantages is...
- It offers a range of features including...
- Created by (manufacturer), this device...

**Surf the net** and **answer** the following questions.



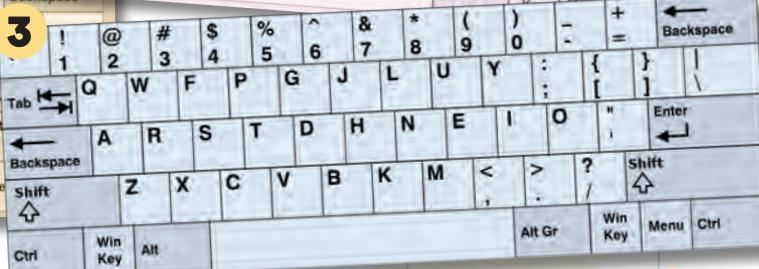
- What did August Dvorak create? \_\_\_\_\_
- What are the differences between the QWERTY and the DVORAK keyboards? \_\_\_\_\_  
\_\_\_\_\_

The most popular keyboard layouts are the QWERTY and the Dvorak. Which is the third most popular keyboard layout? **Find out.**



**Match** the images to their names:

- QWERTY : \_\_\_\_\_
- Dvorak : \_\_\_\_\_
- \_\_\_\_\_ : \_\_\_\_\_



# 5 Talk

*There is a new classmate coming from the US in Nico's class. His name is Stephen. He is blind and he uses software that transforms text into speech so he can understand what the teacher writes. The teacher gives Stephen the material and the slides in advance.*



**Think** of different software programs that can help Stephen study in class.



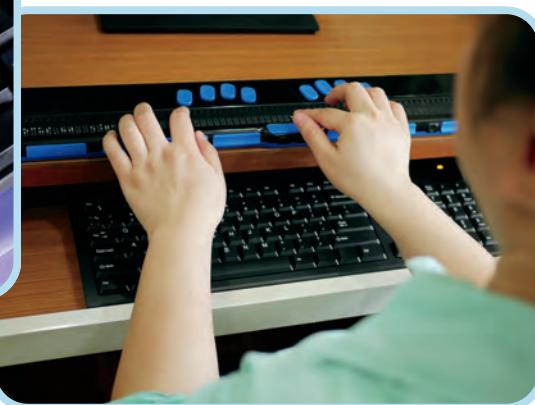
## Did you know?

Stephen (also Steven) (short form Steve) is a first name for boys.  
PRONUNCIATION: /'sti:vn/

Even though text-to-speech can be used by people who are not hearing-impaired, the tool has been used for inclusion purposes.



**Get in pairs** and **discuss** what *inclusion* means.



Two types of refreshable Braille displays.

(Image source: Flickr.com)



## Did you know?

Braille /breɪl/

Read the text “Web accessibility standards” and answer the questions.



1. What are the three main components of web accessibility mentioned in the text?
2. Give an example of a hardware device used for web accessibility.
3. How do people with different disabilities perceive content on the web?
4. What are some adjustments mentioned in the text to make web content easier to understand for everyone?

## WEB ACCESSIBILITY STANDARDS

Web accessibility means making the internet easier for everyone to use, including people with disabilities. Everyone navigates the web in their own way. Some use regular tools, like computers or phones, while others need special devices to help them.

THERE ARE A FEW PARTS TO MAKING WEBSITES ACCESSIBLE:

- WEB CONTENT** This includes everything on a website, like **text, pictures, and videos**. It also includes the code that makes the website work.
- USER AGENTS** These are the tools people use to access websites, like **web browsers or screen readers**.
- HARDWARE DEVICES** These are **physical tools**, like special keyboards or devices that help people who cannot use a mouse.
- PERCEPTION** This means **how people understand things**. Some people hear things better, while others see things better. Some might need to feel things to understand them. For example, someone who cannot see might need a website in Braille. Others might need to hear the website read out loud.

TO HELP EVERYONE UNDERSTAND WEBSITES BETTER:

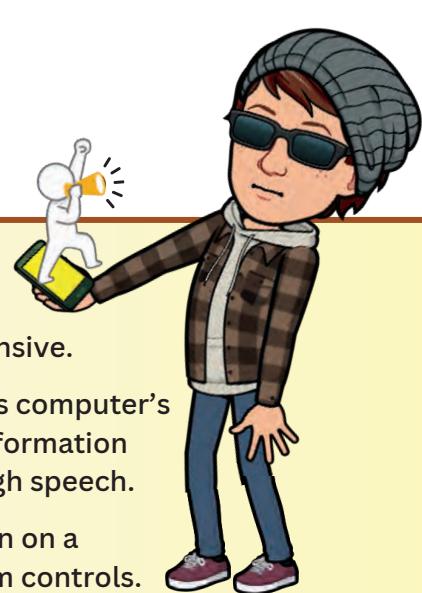
- Make audio clear and visual content easy to see.
- Use both audio and visual elements together.
- Provide different ways to understand content, like sign language.
- By making these changes, we can help everyone use the web more easily.

Some other tools which could be used to make content accessible are:

- audio transcripts
- sign language transcripts
- screen readers
- text-to-speech software
- alternative CAPTCHA options
- image captions
- voice recognition software
- hands-free interaction
- text to speech with highlighted words
- screen magnification software
- refreshable Braille display
- large keys keyboard
- touch screen
- descriptive titles, headings and labels.
- video captions
- clear navigation tools (search box, links, etc.)
- eye movement sensors
- special fonts

**Read** the text about Stephen.

Which of the listed tools does he use? Which others would benefit him but he doesn't use?



Stephen is blind. He is a high school student who uses the web for school tasks and assignments, and like many other blind computer users, he does not use a Braille display because they are very expensive.

Stephen uses his computer and mobile phone to go online. Both his computer's screen reader and mobile phone's accessibility features tell him information about the device's operating system, apps, and text content through speech.

When he goes online, the screen reader reads aloud the information on a webpage, such as headings, table headers, list items, links, and form controls.

This helps him navigate the page and find information easily. He can listen to and understand text-to-speech output very quickly. However, Stephen has problems when websites are not well-designed and do not include descriptions for images, or image captions. These sites are hard to navigate and take a lot of time to read from top to bottom. Sometimes, he finds himself trapped in areas on a webpage and cannot move to another area, so he has to leave the page.

As an active student, Stephen takes part in online classes using video conferencing apps and chat rooms. Stephen and his teachers tried many online learning tools before finding one that works well and has accessibility features for students with different needs.

Can you think of anything else that could help him as a computer user?



As you can see, there are many situations in which people might need web accessibility to help them navigate the net.

**Get in pairs** and **go over** the following situations and find the most appropriate solution for them from the list. More than one option can be suitable for each person.



- **Martina**, an online student who is hard of hearing.
- **Karen**, a retiree with low vision and hand tremors.
- **Julia**, a middle school student with Dyslexia.
- **Ernesto**, a paraplegic university student.
- **Yuni**, a teenager who is deaf.
- **Andrew**, a teacher with hand arthritis.

<b>martina</b>	<b>Karen</b>	<b>Julia</b>
<b>Ernesto</b>	<b>Yuni</b>	<b>Andrew</b>

In this lesson, we have learned many interesting and useful things.

**Complete** the KWL chart about tools that would help inclusion in the classroom.

<b>K</b> <b>What I already Knew</b>	<b>W</b> <b>What I Want to know</b>	<b>L</b> <b>What I Learned</b>

# 6 All about images

What do these images represent?



Read the article in the next page and answer these questions.



These images are logos and they were designed by a Uruguayan graphic designer. Let's meet the creator of those logos!



1. Who is Hernán? \_\_\_\_\_
2. What's his occupation? \_\_\_\_\_
3. What happened on March 14? \_\_\_\_\_
4. What is the reason for holding that celebration? \_\_\_\_\_
5. How has Hernan's job impacted the world? \_\_\_\_\_

These numbers appear in the text. Give a brief explanation of what they represent.

1970



40

3.14

3

14

39

Get in pairs to compare your ideas.



# MATH meets Design

## An Interview with Hernán Varela



editorial:  
FOCUS ON  
DESIGN

The International Day of Mathematics (IDM) is celebrated on March 14, a date chosen for its mathematical meaning. The IDM was proclaimed by UNESCO's 40th General Conference, and to mark this occasion, the International Mathematical Union (IMU) organized a global contest to design the day's logo. The winner was Uruguayan designer Hernán Varela.



**Hernán Varela**  
Graphic Designer

We spoke with Hernán about his creative process. "I have worked for more than 30 years in the design and communication fields, but I usually don't participate in contests. However, this one seemed like a great opportunity, given its international scope and professional appeal. The challenging part was that I had only 10 days until the contest's deadline, but I decided to give it a try."

"It was a very tough job because there were many difficult aspects to consider. The logo needed to include the text 'International Day of Mathematics' in various languages and alphabets, as well as a graphic representation of Pi (3.14)."

Hernán explained that March 14 -- written as 3/14 in many languages -- was the selected date for the international Mathematics Day because 3.14 are the first three digits of the mathematical constant Pi ( $\pi$ ) which is used to find the area and circumference of a circle.

"I did some research since I'm not a mathematician. I worked on different concepts for the iconic part of the project: the visual representation of Pi. Finally, I created three icons, one inspired by the Fibonacci sequence, a second one based on a prism formed by 14 triangles, and the last one was made up of colored dots."

"But that was just the icon; I still had to think about the text. Typography is crucial in any design project, and it was particularly complex here. The text needed to be harmonious, simple, and easily recognizable in different languages. I chose a simple sans serif font so that the characters could be clean and legible in all versions."

Hernán submitted his three proposals by the deadline, and shortly after, the IMU notified him that they had chosen one of his designs.

"The winning design was a visual representation of Pi using colored dots. The first row has three dots that point to the left, representing the whole number, while the rest of the rows point to the right, representing the decimals. It is visually simple but conveys a complex concept. A balance between aesthetics and theory."

Hernán's design is visually straightforward yet conveys a complex concept with a lot of information, and it has been highly accepted by various mathematical communities. By 2023, the logo has versions in 39 languages, and over 3,000 events are held in more than 40 countries on the appointed day.

"Everything was done in the Uruguayan way: a considerable amount of work at the very last minute, but I'm very happy with the result. It was a challenging job, and I was able to show disposition, speed, and quality. Winning was a bonus."

For more information on the International Day of Mathematics and its events, visit [www.idm314.org](http://www.idm314.org).

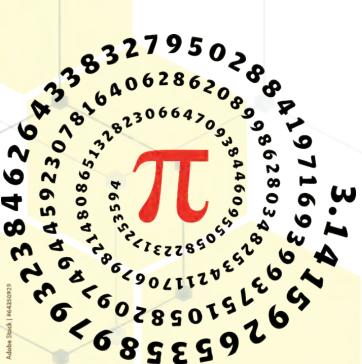


**Hernán Varela**

Montevideo, May 16th, 1970.

Artist, graphic designer, and advertising creative with more than 30 years of experience in communication.

During his career, he has worked on the development of more than 150 corporate image logos for important brands and companies, both national and international. More information at profile.

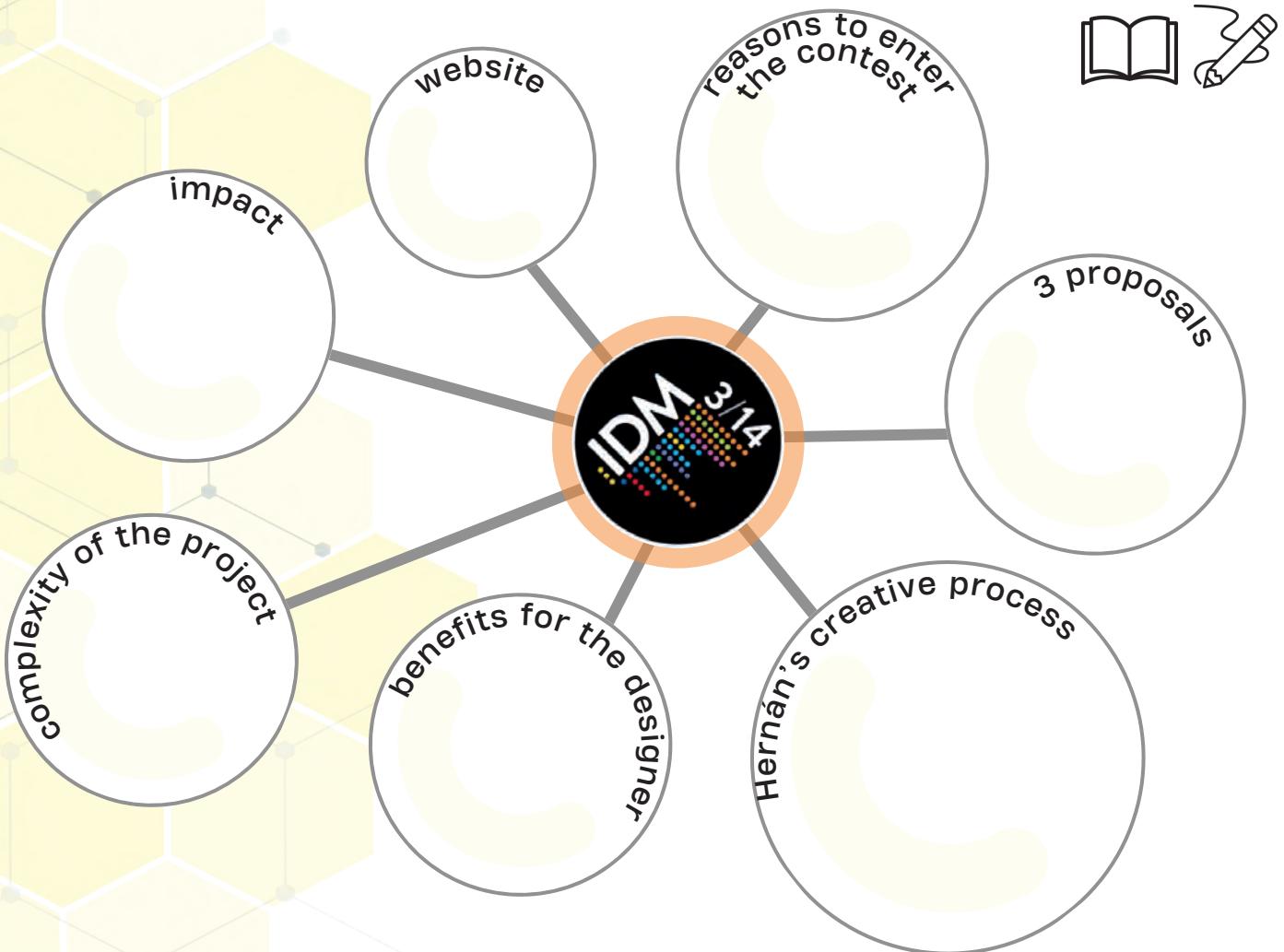


## Did you know?



- **Pi ( $\pi$ )** is a mathematical constant representing the ratio of the circumference of a circle to its diameter. It is approximately equal to 3.14159, but it goes on infinitely without repeating.
- **Fibonacci numbers** are a series of numbers where each number is found by adding up the two numbers before it. It starts with 0 and 1, and goes like this: 0, 1, 1, 2, 3, 5, 8, 13, 21, and so on.
- **Decimal numbers** have two parts: the whole number part before the decimal point and the fractional part after it. For example, in 3.14, "3" is the whole number part, and "14" is the fractional part.

**Read** the text again and **add** all of the features of the IMD logo to the mind map.



## Find Hernán's explanation of his design in the text.



What do the dots and their disposition mean? **Explain** it to the class.



Hernán works as a graphic designer and has created logos for several companies. **Look** at this poster and **identify** the parts of a logo.



Logos are a great part of his job. Let's get more information about their different parts, and what the creative process of making them is like.

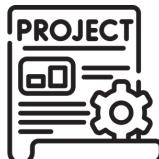
**Search the web** and choose a well-known logo.

Can you recognize its main parts? Which brand does it represent?

**Share** your findings with a partner.



## Project



### Does your institution have a logo?

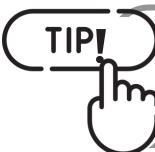
- Imagine the institution you attend wants to change its image.
- Work in groups of 3 and **design** a logo and a mascot to represent it.
- Then, **present** your ideas to the rest of the class explaining why you made that design.
- Finally, **decide** which one is the most creative.
- **Share** it with the school principal and propose to adopt it.



### An explanation of good logo design

A good logo has three important parts that work well together:

- **The icon or symbol:** This is a simple picture that represents the school in the logo. It should be easy to recognize, even if it's small.
- **The brand-name, in this case, the school name:** This is just the name of our school, written in a way that's clear and easy to read.
- **The tagline or catchphrase:** This is a short sentence that gives more meaning to our school's name. It usually goes under the school name, in a font that looks good with it. It's important to pick the right size and position for the catchphrase.



When you design the logo, try to use two fonts that go well together. It's best not to use too many different fonts. Google Fonts are a good choice because they work well both on paper and online.

# 7 The eyes of the PC

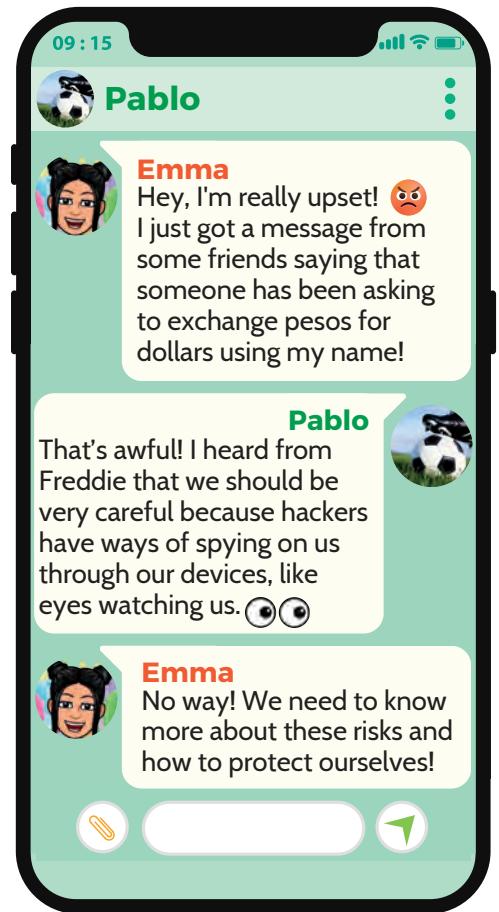
**Read** the chat between Emma and Pablo.  Can you guess what the topic of the lesson is?

**Get in small groups** and **discuss** this question:  
What are the eyes of the PC?



**Listen** to an expert and say whether these sentences are true or false.  

1. The eyes of the computer are peripherals that help get information into and out of the computer.
2. The expert mentions five types of scanners.
3. The hand-held scanner is useful to send data to the cash register.
4. A good resolution for a scanner is 800 DPI.
5. DPI means “designs per inch.”



**Listen** again and number the types of scanners in the order the speaker them (there's an extra one).  



(Images from Wikimedia Commons - Flickr.com)

**Listen** to what the expert has to say about *digital cameras and webcams* and **answer** the questions.  

1. How can you connect the camera to the PC?
2. How can you send the pictures to the computers?
3. Can webcams store your pictures and movies?
4. Are laptops equipped with webcams?
5. Can you print pictures without using the computer?

Which of these “eyes of the computer” can be used by cybercriminals to attack you?

**Read** this infographic about webcam hacking.



**Get in pairs** and **discuss** the following ideas.

**1** “51% of computer users are unaware of webcam hacking”

What might contribute to this lack of awareness?

**2** “Worldwide cybercrime costs are estimated to hit \$10.5 trillion by 2025.”

What does this say about the importance of cybersecurity?

**3** “95% of cybersecurity breaches are due to human error.”

Why do you think this happens? Give examples of common mistakes people make.

**4** “66% of people use the same password on multiple sites.”

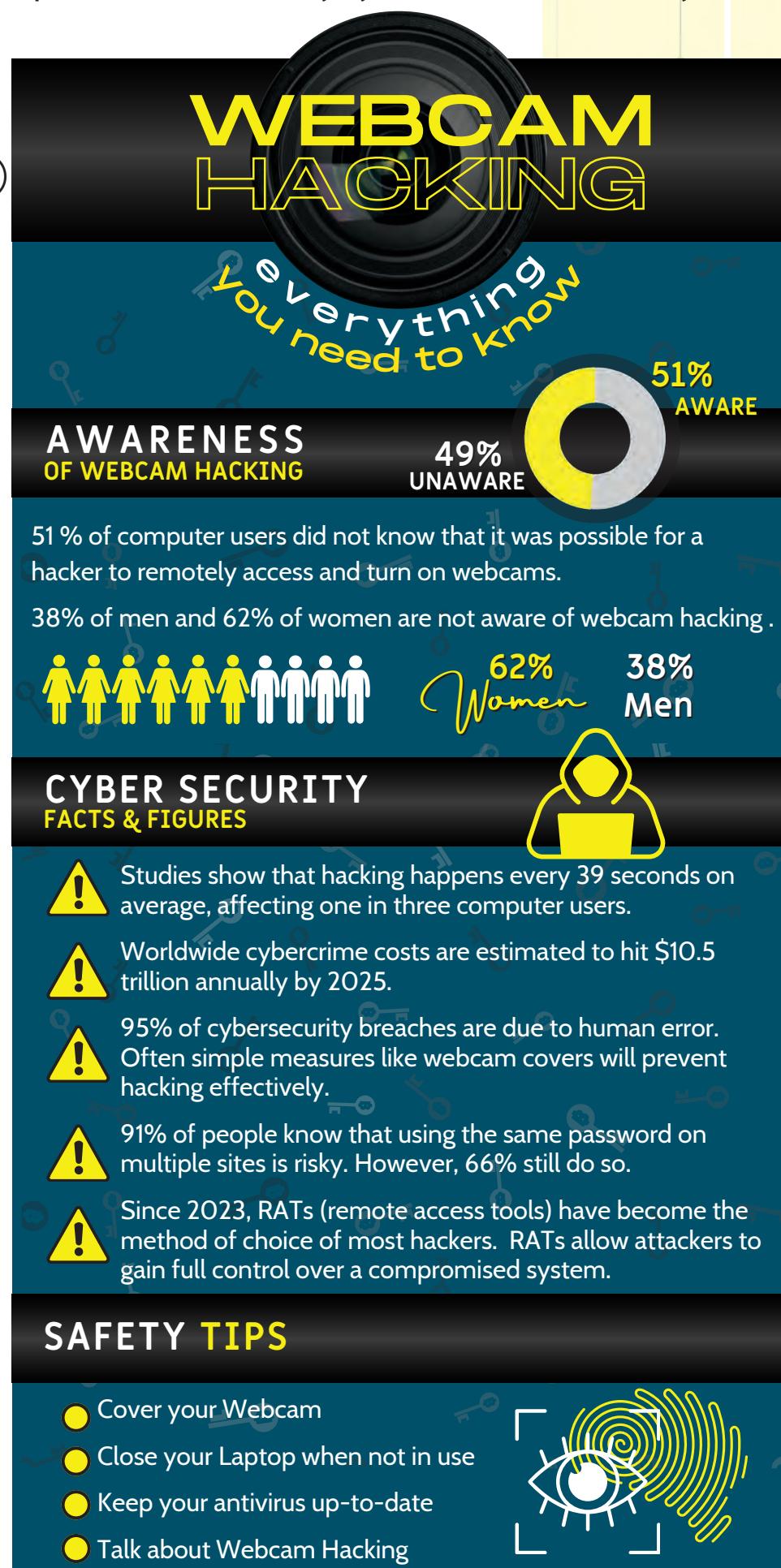
Why do you think they do this if they know it is risky?

Which of these ideas does the infographic mention?

- Hackers access remotely by means of RATs.
- RATs can access your computer when you are not connected to the internet.
- RATs can access your computer via links in phishing emails.

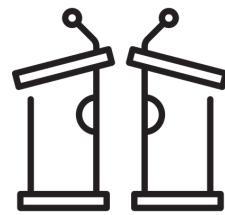
Which safety tip do you think is the most effective? Why?

Would you add any other advice?



## Group Debate

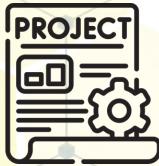
**Topic:** *"Is it more important to invest in technology or user education to prevent webcam hacking and other cybersecurity threats?"*



- **Group A:** Argue in favor of investing more in advanced security technology (e.g., better antivirus software, AI-based threat detection).
- **Group B:** Argue in favor of focusing on user education and awareness campaigns to reduce human error and improve security practices.



## Project



Creating a cybersecurity awareness campaign for high school students

- **Get int groups** of three.
- **Identify** the key messages:
  - What are the three most important messages you want to communicate about webcam hacking and general cybersecurity?
- **Develop** the campaign materials:
  - Create a poster that conveys the three important messages you agreed upon in the previous point. Include the importance of at least 3 security measures, like webcam covers, closing laptops when not in use, keeping antivirus software up-to-date, etc.
  - Draft a social media post to raise awareness about the frequency of hacking and the cost of cybercrime.

# 8 Ergonomics impacts us all

The characters are having some problems. **Read** what is happening.



Inés is experiencing frequent migraines. She works long hours at the computer and she sits on an old wooden chair.



Pablo helps his uncle in his graphic design company. He's been doing this for several years. He occasionally experiences numbness in his hands.

Diego is an avid video gamer who spends hours in front of the computer playing video games. He usually ends up with back ache and numb legs.



The three of them have some health issues caused by using the wrong furniture or equipment. What's wrong with them?



What does the word ergonomics mean? **Read** the definition below.



***The study of the design of furniture or equipment and the way this affects people's ability to work effectively.***

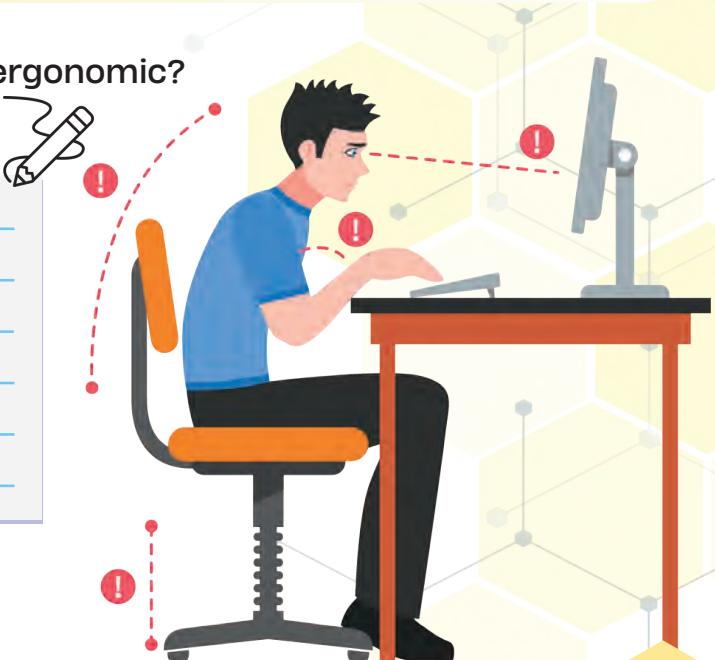
## What daily objects can be identified as ergonomic?

**Make** a list and share it with a partner.



This image shows a set of horizontal blue lines for handwriting practice. A vertical red line on the left side creates a margin. In the top right corner, there is a small blue icon of a spiral notebook.

**Look at the image,  
what is this person doing wrong?**



Read the infographic about ergonomics and complete the diagram with the advice's numbers.



# work science!

Whether you work in an office or study long hours, taking care of your work/study setup is crucial for your health and productivity. Poor ergonomics can lead to discomfort, pain, and long-term health issues, commonly known as office syndrome.

## ERGONOMICS BASICS



Keep shoulders & upper arms relaxed. Elbows should be bent at approximately 90°, with forearms parallel to the floor.

1

Sit with your back fully supported by the chair's back rest. It's important to have lumbar support for lower back.

2

Place the screen 40-75 cm away from you. Your eyes should be level with the top of the screen.

3

Adjust chair & desk height accordingly. Recommended chair/desk height: 38-55 / 72-75 cm.

4

Head & neck should be upright.

5

Hands & wrists should be straight and flat above the keyboard.

6

Use a footrest if your feet are not flat on the floor.

7

Your thighs should be parallel to the ground or slightly inclined downward. The seat back angle should be about 90°.

8



Do you recognize this type of chair? It's called an *ergonomic kneeling chair*.



Look for it on the web and tell the class about some of its benefits:



- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Read the *practical tips* section.



Can you think of any other recommendation to reduce discomfort?



## work science!

PRACTICAL  
TIPS

- 1 **Eliminate glare:** Reduce glare from your monitor. Try to have a secondary light on.
- 2 **Eye strain:** Regularly look away from the screen to focus on something farther away.
- 3 **Tame the mouse:** Keep it alongside the keyboard with good wrist support.
- 4 **Frequent breaks:** Take 1-2 minute breaks every 30 minutes to move and increase circulation.
- 5 **Listen to your body:** Pain and discomfort are warnings to adjust your workstation or study methods.

Let's **go back** to Inés, Pablo and Diego's problems. What do you think were their problems? Which tips or advices could help them feel better?

 Inés	 Pablo	 Diego

These issues are very common in our IT classes. Even though you are very young, you must take care of yourself.

**Get into groups** of three and choose one of the ergonomic issues you may suffer from in the future. **Think** of an action plan to make your classmates aware of the issue and create some posters to paste next to the PCs.



**Display** your posters around the classroom. **Move** around and look at the different posters. Think of other sensible ideas to improve your classmates' health.



# Project



## Exploring ergonomics in everyday life

Ergonomics is crucial in many everyday scenarios beyond the office, significantly impacting comfort, efficiency and safety.

Can you think of other everyday scenarios where the principles of ergonomics play a vital role in enhancing our daily lives?

- **Get into groups** of 3 students.
- Each group **chooses** one of these environments:
  - driving cars
  - school
  - healthcare
  - sports activities
  - retail work
  - public transportation
- **Analyze** your scenario and identify:
  - existing ergonomic designs and their benefits.
  - any ergonomic problems that still exist.
- **Design** a new ergonomic solution for a common activity in their chosen scenario. For example, an ergonomic school backpack, athletic equipment, or a more comfortable bus seat.
- **Create** a poster or digital presentation to showcase your design. **Include** illustrations and explanations of how it improves comfort, safety, and efficiency.



# 9 Input devices for everyone

Pablo is showing his granddad a tablet.  
Can you guess what they are talking about?

## OLPC in hands of all Uruguay's primary kids

published October 16, 2009

One Laptop Per Child scheme finds its feet in South American schools.

Uruguay become the first country to supply the cheap computer to all of its primary school children.



## Nearly 4 years in, Uruguay's Plan Ibirapitá promotes digital inclusion for the country's senior citizens



Gloria - [Follow](#)  
Feb 03, 2019

## NEWS

Page last updated at 08.50 GTM, Friday 12 October 2010

### LAPTOP FOR EVERY PUPIL IN URUGUAY

By Verónica Pérez  
Montevideo, Uruguay

23.03.2021  
by Alex Harris

### Digital Education

## Why Uruguay's Schoolchildren Are Doing So Well in the Pandemic

Every child gets a laptop from the state, along with online teaching materials and animated school books. Uruguay shows how it is done when it comes to digital education.

### URUGUAY

02/06/2022, 11:54

## Plan Ceibal turns 15 years old

2,600,000 laptops and tablets delivered since 2007

Fifteen years ago, Plan Ceibal started the journey to provide every student and teacher in public schools with a laptop and internet access.



Did you know that Uruguay has a policy regarding giving electronic devices to everyone?

Look at these four newspaper headlines. **Read** them and **answer** these questions.



1 What are the articles about?

---

2 What do they have in common?

---

3 What are the different plans mentioned?

---

**Look** at what some people say about the headlines.

**Read** the headlines again and decide whether the information they have is *correct* or *incorrect*.



The OLPC in Uruguay is implemented only among adolescents.



The OLPC is being implemented only in Uruguay.



Having a laptop eased the pandemic times in education in Uruguay.



If you are retired, you are eligible to get a laptop.



Plan Ceibal is 17 years old.



OLPC is also used among students from the private sector of education.



These pieces of news were published in the media.

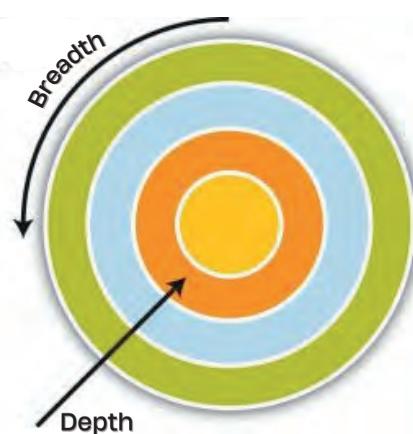
In groups, **surf the net** and **choose** one of them.



**Read** the article online and **make** a presentation about it. In your presentation, one person in the group has to imitate a technology advocate and has to prepare a one-minute speech.

**TIP!**

Use the *onion approach* to create your presentation. Start with an impactful phrase (some data, an anecdote, or a quote). Then, include some general ideas and after that, some more particular information. Finish the presentation with an impactful phrase or anecdote or quote.



Peeling the Onion



**Use** the same approach to **prepare** a one-minute presentation telling why the OLPC and Plan Ceibal programs have been so revolutionary in Uruguay.



**Look** for information about the OLPC program online and **complete** the following chart.



<b>Program Name</b>	One Laptop per Child (OLPC)
<b>Inception year</b>	
<b>Founder</b>	
<b>Objectives</b>	

**Watch** the video about OLPC and XO laptops and **answer** the questions.



1. What is the primary question asked at the beginning of the video?
2. How does substituting "laptop" with "education" change the perspective on providing laptops?
3. Why should education be considered at the same time as other challenges?
4. What changes do children experience when they get their XO laptops?

**Watch** the video again and **complete** the mind map about the XO's laptop features. Then, **explain** what each feature implies.



The OLPC program has been implemented in other countries besides Uruguay. How have they implemented this plan? How successful have they been?



# 10 Gaming devices

Read Inés and Diego's dialogue.



**Diego:** Hey Diego, when did you start playing video games?

**Inés:** I think I was around eight. My first game was *Super Mario Bros* on the Nintendo! What about you?

**Diego:** I actually started on my dad's old Atari. I remember playing *Pong* for hours!

Get in pairs and discuss these questions.



- When did you start playing video games?
- What was the first gaming device you used?
- Have you heard of the Atari or any other old consoles?

Do you recognize these consoles?

Label them.

**TIP!**

You can make a Google Image Search to help you.



3 \_\_\_\_\_



6 \_\_\_\_\_



1 \_\_\_\_\_ **Sega Mega Drive**



2 \_\_\_\_\_



4 \_\_\_\_\_



5 \_\_\_\_\_

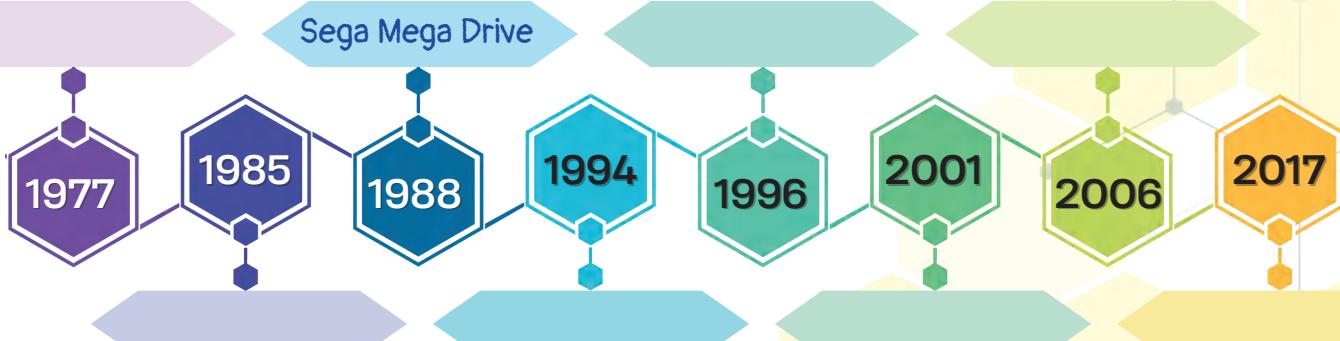


7 \_\_\_\_\_



8 \_\_\_\_\_

**Surf the internet** and place each of the previous consoles in the correct position on the timeline below based on the year when they were released.



Can you think of any new gaming consoles that have been released since 2017?  
**Create** a list of at least three consoles that have come out during this time.



Then, **compare** your list with your partner's list. Are they similar or different?

**Read** the text about the evolution of gaming devices.



## THE EVOLUTION OF GAMING DEVICES

from the  
1970s to  
today

Gaming devices have changed significantly since the early days of video games. Let's look at some of the most important devices that shaped the gaming world and how hardware advancements have transformed the gaming experience.



### Atari 2600 (1977)

One of the first home consoles, the Atari 2600 was an 8-bit system that played simple games like *Pong* and *Space Invaders*. Its release marked the beginning of home gaming, paving the way for future innovations in hardware.



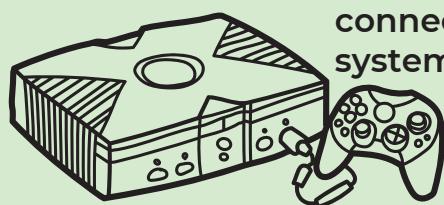
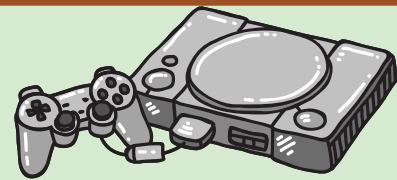
### Nintendo Entertainment System (NES) (1985)

The NES made video games popular again after a market crash in the early 1980s. It introduced iconic characters like *Mario* and *Zelda* and featured improved graphics and sound. The NES popularized the use of cartridges, setting the standard for home consoles. It was also an 8-bit system.



## Sony PlayStation (1994)

The PlayStation changed gaming by using CDs instead of cartridges. This allowed for larger games with better graphics and audio, with a 32-bit system. The shift to CD technology represented a significant advancement in gaming hardware, making it possible to create more complex and immersive worlds. It became the first console to sell over 100 million units.

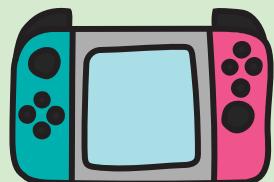


## Microsoft Xbox (2001)

The Xbox introduced online gaming with Xbox Live, connecting players worldwide. It also featured a 32-bit system, and included a built-in hard drive, which was a major innovation at the time, allowing for downloadable content and game storage. This integration of online capabilities into console hardware marked a new era in multiplayer gaming.

## Nintendo Switch (2017)

A hybrid console that functions as both a home system and a portable device, the Nintendo Switch revolutionized gaming with its versatility. It combines powerful hardware with innovative gameplay mechanics, allowing players to enjoy exclusive titles both at home and on the go.



## Modern Gaming PCs (2020s)

Today's gaming PCs are equipped with powerful GPUs and CPUs, enabling gamers to play at high resolutions and frame rates. With technologies like virtual reality (VR), modern PCs provide the most immersive gaming experience, showcasing the significant advancements in hardware capabilities over the decades.

Read the text again and **answer** these questions.



1. Why was the Atari 2600 important for home gaming?
2. How did the Nintendo Entertainment System (NES) help the video game industry after the 1980s crash?
3. What new technology did the Sony PlayStation use instead of cartridges, and how did it change gaming?
4. How did the Microsoft Xbox change playing video games?
5. What makes the Nintendo Switch different from other consoles, and how has it changed gaming?

Read the text again and **complete** the chart with the information provided in the text and/or any additional details you find online.



	Atari 2600	Nintendo Entertainment System (NES)	Sony PlayStation	Microsoft Xbox	Nintendo Switch
Release year		1985			
Bit system					64-bit
Media type	cartridges				
Notable games				Halo, Forza	
Online capability			No		
Portable functionality					
Storage capacity	Not applicable	Not applicable			
Graphics resolution					

Get into groups of three.



- Use this chart to **compare** the consoles and **discuss** how each one contributed to the evolution of gaming hardware.
- How do you think advancements in gaming hardware, like virtual reality and high-performance graphics, will change the way we play and enjoy games in the future?



In this unit, I learned that...

Something I need to revise is...

my favorite part of this unit was...

I felt...



# UNIT 3

## Output devices



# 1 Why do I need them?

What do you understand by output device?

**Get in pairs** and **complete** the definition with the words from the box.



COMPUTER - DISPLAY - PERIPHERAL - WIRELESS - REPRODUCTION - RECEIVES

Any \_\_\_\_\_ which \_\_\_\_\_ data from a computer for \_\_\_\_\_, projection, or physical \_\_\_\_\_. They are connected to a \_\_\_\_\_ by cables or \_\_\_\_\_ networking.

How important are output devices? **Share** your ideas with the rest of the class.

**Listen** to a woman talking about the reasons for having an output device and **say** whether these statements are *true* or *false*.



- 1 A computer can't function without an output device.
- 2 Without an output device, it's impossible to determine what the computer is doing.
- 3 If you detach your monitor from your computer, the computer still functions.



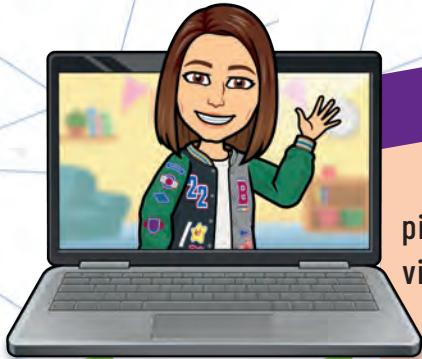
Find out about the most common output devices.



Read the brochure and **answer**.

# OUTPUT DEVICES

## MONITOR



The monitor is the most common computer output device. It displays output in the form of images on a digital screen. These images are composed of millions of tiny dots called pixels; more pixels result in better image resolution. Monitors create a visual display that allows users to view processed data and they come in various sizes and resolutions.



## SPEAKERS

Speakers are connected to computers to facilitate sound output. They function similarly to headphones, making our entertainment experience more enjoyable. With speakers, we can watch movies, listen to music, recordings, or any audio content.



## HEADSET

This output device integrates speakers and a microphone. It converts the computer's electrical signals into sound. They are primarily used by gamers, but it is also an excellent tool for online communication with family and friends. The best thing is that they are light and portable.

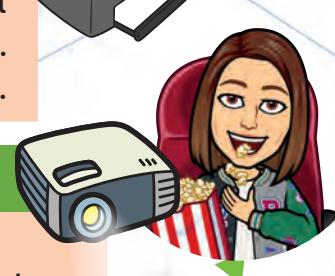


## PRINTER

Printers generate a hard copy version of processed data, like documents and photographs which can be both colored or black and white.

## PROJECTOR

The projector is a display device that projects images created by a computer onto another surface. The computer transmits the image data to its video card, which in turn sends the video signal to the projector. The projector is typically connected to the computer using HDMI cables or VGA cables.



Which output device...



- 1 transmits information to a video card? \_\_\_\_\_
- 2 is the most common one? \_\_\_\_\_
- 3 is mostly preferred by gamers? \_\_\_\_\_
- 4 needs to be connected through a VGA cable? \_\_\_\_\_
- 5 works as a headphone? \_\_\_\_\_
- 6 emits the output in the form of electric signals? \_\_\_\_\_

**It's your turn!**



**Talk** about other output devices.

**Get in pairs, choose** two of the following devices and **write** a short paragraph about each of them in the *brochure* on the previous page.



- **GPS**  
(Global Positioning System)
- 
- **Sound card**
- 
- **Plotter**
- 
- **Speech Generating Device**
- 
- **Braille Reader**



## Project **Designing a futuristic output device**



As part of your career, you will have to deal with and work with new output devices. This time, you are tasked with **designing a futuristic output device**.

- Consider its potential uses, characteristics, and other pertinent information that users will need to know.
- Include a picture of the futuristic output device to complement your description. You can create a poster, a video, or an infographic to promote and market your new product.

# 2 Every part matters

Hidden in this word search are nine terms related to computers.

Can you **find** them? There is an image to help you.



1 server

2

3

4

5

6

7

8

9



How do these images relate to the words in the previous activity?



1



2

What do they have in common? How do the images differ?

Why are computers organized in these ways?

What is a network?



Get in groups of three students and **answer/complete**.



1 **Define network.**

2 **Differentiate** between *wired* and *wireless* network.

3 **Explain** the following terms *PAN*, *WLAN*, *WAN*, *LAN*. What do the acronyms stand for?

PAN: personal area network

WLAN: \_\_\_\_\_

WAN: \_\_\_\_\_

LAN: \_\_\_\_\_

4 **Match** each of them to one of these scenarios:



At the office, employees share files and printers and collaborate on projects using a network that connects all the computers within the building.

In the school library, students use their laptops and tablets to access the internet via the school's Wi-Fi network to complete their research projects.

**WAN** John is video chatting with his cousin who lives in another country using an internet connection that spans across cities and continents.

Maria is listening to music on her wireless headphones connected to her smartphone via Bluetooth while she waits for the bus.

**TIP!** You can search the web if you need any help.



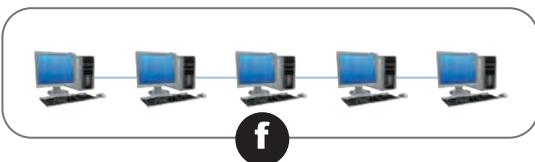
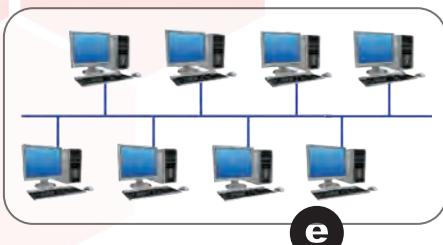
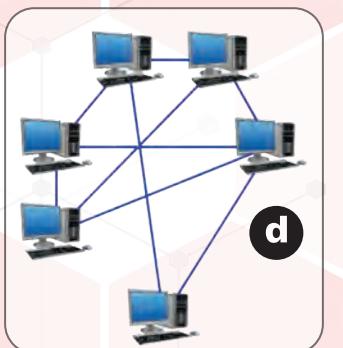
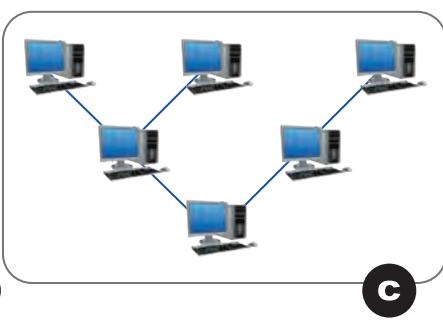
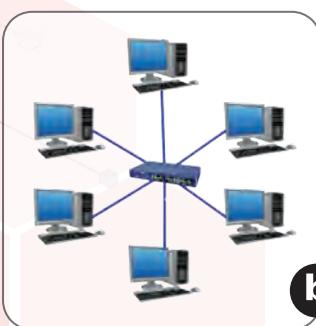
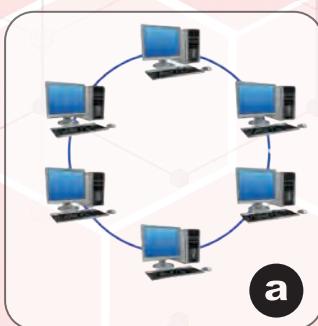
**Look** at the different network topologies below.



**Match** the diagrams to their names.

• **bus** F • **ring**   • **mesh**   •

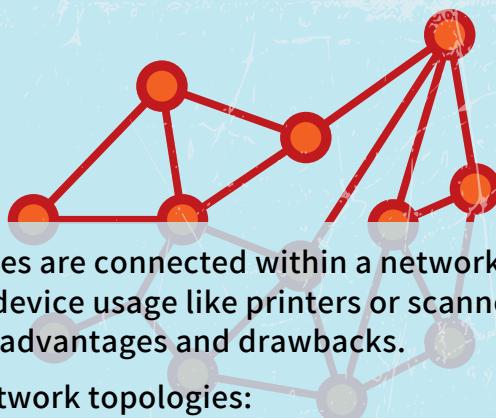
• **tree**   • **star**   • **line**   •



Read this infographic to learn more about these topologies.



# 4 NETWORK TOPOLOGIES

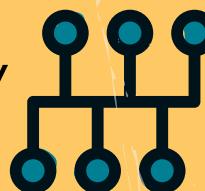


A network topology refers to how computers and devices are connected within a network, influencing communication, information sharing, and device usage like printers or scanners. Different arrangements of network nodes offer unique advantages and drawbacks.

Let's explore the benefits and drawbacks of various network topologies:

## 1 BUS TOPOLOGY

In a bus network, all workstations are connected to a single cable terminated at both ends.



### PROS

- Ideal for small networks.
- Simple setup, handling, and implementation.
- Economical to implement.
- Faults in one station don't affect others.

### CONS

- Security risk as all data is visible to every device.
- Limited cable length and station capacity.
- Performance declines with more computers added.

## PROS

- Easy setup and reconfiguration.
- Fault identification is straightforward.
- Equal access to peripherals for all stations.

## CONS

- Network failure if one node breaks.
- Reconfiguration challenges.
- Transmission speed decreases with more nodes.
- Can be expensive.

## 2 RING TOPOLOGY



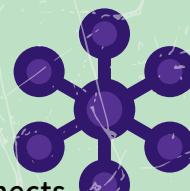
Workstations are linked in a closed loop, with each acting as a repeater.

## PROS

- Each workstation connects directly to a central computer or server.
- Low security risk.
- Simple addition of new nodes or devices.

## STAR TOPOLOGY

Each workstation connects directly to a central computer or server.



## CONS

- High setup costs due to extensive cabling.
- Node capacity limited by hub capacity.
- Network failure if central hub fails.

## 4 MESH TOPOLOGY

Every computer is linked to every other computer via separate cables.



### PROS

- Network doesn't fail with one node down.
- Handles heavy traffic well.
- Data transfer to multiple nodes simultaneously.
- Fault identification is easy.

### CONS

- Administration and reconfiguration challenges due to complexity.
- Expensive installation due to extensive cabling.

What are the advantages and disadvantages of working in a network?

**Read the text and answer.**



- 1 Does the concept of network align with the one you created? How?
- 2 What is the concept of network topology?
- 3 How do you find network topology useful in your everyday life?
- 4 Take a look at the advantages of the network topologies listed in the infographic and select the one you think is the most important.
- 5 Take a look at the advantages of the network topologies listed in the infographic and select the one you think is the most important.

Are there any advantages or disadvantages you would add?



Two network topologies are not mentioned in the infographic. Can you identify which ones?

**Write a short description and add one advantage and one disadvantage for each of them.**



## Line

---

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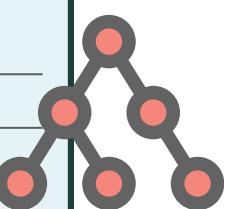
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## Pros

Cons



## Tree



Handwriting practice lines. A red circle is at the right end of the bottom line.

## Pros

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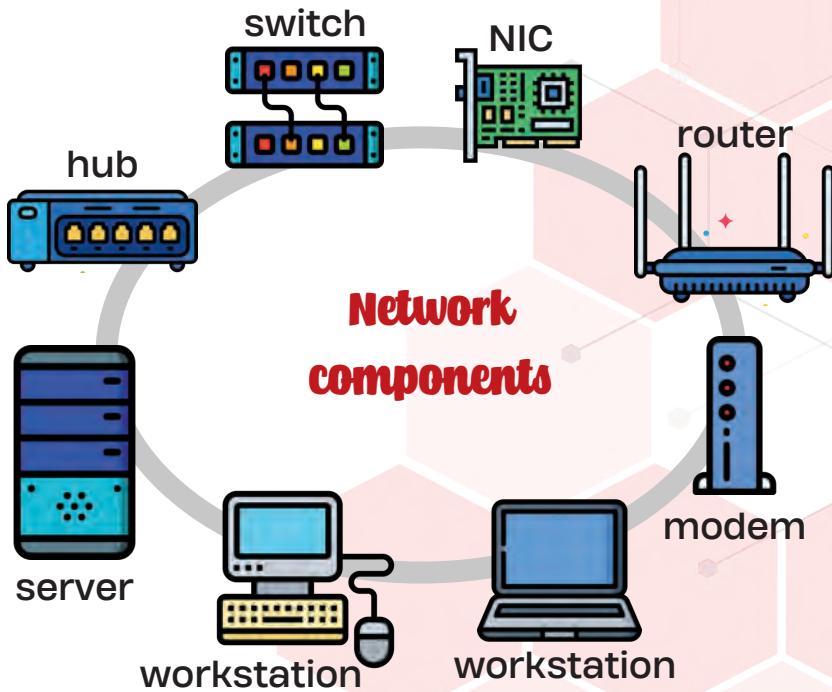
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What are the most important network components?



**Look** at the diagram of the components of a network on the previous page.

**Unscramble** the names of the components of a network and **match** them to their definitions.

- 1 REVERS \_\_\_\_\_
- 2 BUH \_\_\_\_\_
- 3 OTERRU \_\_\_\_\_
- 4 TCWSIH \_\_\_\_\_

- 5 CIN \_\_\_\_\_
- 6 DOMEM \_\_\_\_\_
- 7 NOITATSOKWR \_\_\_\_\_

2 - hub : It connects multiple devices in a network and sends data to all connected devices.

— -                    : It connects multiple devices in a network and sends data only to the device it is intended for.

— -                    : It is a dedicated computer used to provide centralized management in a network.

— -                    : It converts modulated analog signals into computer digital data signals and vice versa. Often both wired and wireless.

— -                    : It is a computer expansion card that allows your workstation or server to connect to a network via an ethernet cable.

— -                    : It is a powerful computer used for technical or professional tasks, often connected to a network.

— -                    : It is a device that directs data and manages traffic within a network.

**Find information** about your school.

How are the different networks organized?

For example, *in the secretary's office, in the IT classroom, etc.*

# 3 monitor vs screen

Think of these devices. What are they?

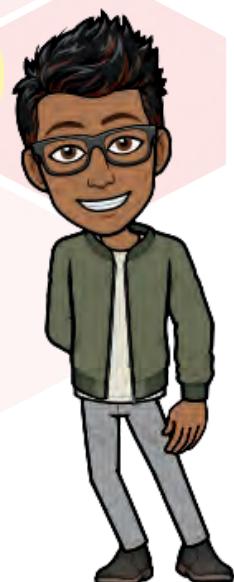


1 fingerprint scanner  
2 \_\_\_\_\_  
3 \_\_\_\_\_

4 \_\_\_\_\_  
5 \_\_\_\_\_  
6 \_\_\_\_\_

7 \_\_\_\_\_  
8 \_\_\_\_\_

What do these elements have in common?



All the items have some form of display!

What about a desktop computer?

This device differs from the others. The desktop computer has a monitor. Displays, screens and monitors have similar functions but they are somehow different.

What are the similarities and differences between them?

**Find** information about monitors, screens and displays on the internet and **complete** the table below.



DEVICE	CHARACTERISTICS
screen	
display	
monitor	

**Listen** to the audio about monitors, screens and displays and **check** the previous activity. **Add** any new information to the chart.



**Answer** these questions with information from the chart and the audio.

- 1 What is a monitor used for? \_\_\_\_\_
- 2 Name three types of devices that have screens. \_\_\_\_\_
- 3 What is included in the category of displays? \_\_\_\_\_

**Get in pairs** and write a short definition of a *touchscreen monitor*.  
What is the difference with an ordinary monitor?



**Get in groups** of three. **Compare** your findings and **give** a rationale for the selection of one or the other to be included in a device.



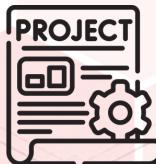
Deciding whether to use a screen, a display or a monitor is very important. It's time to come up with a new device to address this topic.

**Read** the following situation.

*"Freddie's uncle is an entrepreneur, philanthropist and environmentalist. He wants to create a device to measure the amount of carbon monoxide that is in the air. He doesn't want to contaminate the air with his company."*

## Project

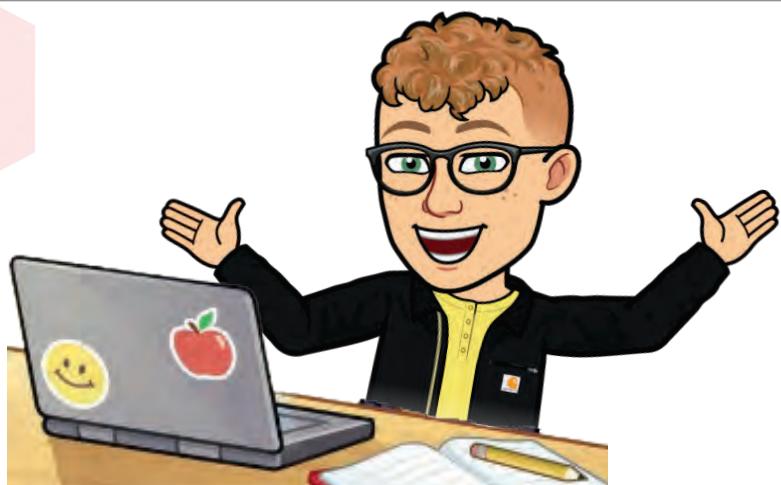
### EcoTech Innovation



**Make** a drawing of the prototype, **describe** its functions and say whether it uses a display, a screen or a monitor and say why.

**Share** your prototypes and grade from 1 to 5 (being 5 the highest rate) in each of these categories (fill in one of these charts per presentation).

usefulness	
sustainability	
creativity	
novelty	
overall rate	



# 4 Print it!

Duma found a job at a tech store. Some of the items he sells are printers.

Many customers usually ask questions about printers so it's very important for him to know a lot about the topic.



He found this interesting article about the history of printing. **Read** it and **match** the words in **yellow** with their definitions.



- a.** Exactly right
- b.** Very important
- c.** Caused by something else
- d.** A major advance
- e.** Without wires
- f.** A large printer for specialized uses
- g.** Changed something to fit a new purpose
- h.** Making something easier
- i.** Relating to electricity that builds up on a surface
- j.** Having many different functions



# To print or not to print... what a wonderful question!

Firstly, it is **crucial** to define what printing means. Printing involves producing written material or images on various surfaces such as paper, fabric, and more. Initially, printing was limited to a specific group, mainly those related to producing printed material like books or newspapers.

However, nowadays, literally everyone can print different kinds of material since printers have become a common item in almost every household.

Early printing methods

Advancements in printing technology

Modern & future printing

In 1938, the first real printer, the Xerograph printer, was developed. This machine used **electrostatic** charges to make dry ink stick to a light-sensitive surface that rolled over paper, transferring the image. The 1960s saw the arrival of the laser printer, which operated similarly to its predecessor but utilized a laser and static electricity instead of copying from an original page. This was a revolutionary development in printing technology.

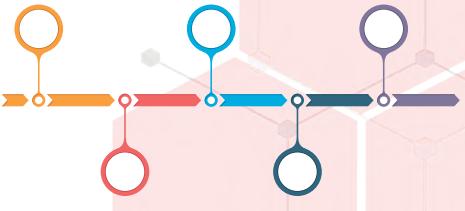
The 1970s introduced the inkjet printer, capable of reproducing images generated by computers. Though created in the 1950s, its principal mechanism, borrowed from a coffee maker, only gained popularity by 1988 for home use. A major **breakthrough** came in 1984 when Charles Hull invented the 3D printer, which could create solid objects in three dimensions from a digital file. This technology is still used in fields like medicine, construction, and aviation.

Later on, **multi-function** printers (MFPs) appeared, providing a wide variety of uses in a single device, such as copying, scanning, printing, and faxing. Additionally, Andrew Clams developed a **wireless** printer that can connect to any device via Bluetooth or Wi-Fi.

In addition to these, several specialized printers serve specific purposes. For instance, **plotter** printers, traditionally known as plotters, are used in design, architecture, engineering, marketing, and art fields because they can print much larger areas than common printers.

The evolution of printers is an area likely to continue improving and **facilitating** our lives. Scientists are working on the possibility of printing food with special printers that use edible ink, matching the flavor to the designed image. Moreover, 3D printers now allow the creation of customized medical devices, prosthetics, and even organs using stem cells, promising significant advancements in healthcare.

**Read** the article again and **create a timeline** with the most important milestones in the evolution of the printer.



**Get in groups** and **consider** the following.



- With the rise of digital media, do you think traditional printing will become obsolete?  
Why or why not?
- What are some advantages and disadvantages of printed materials over digital ones?

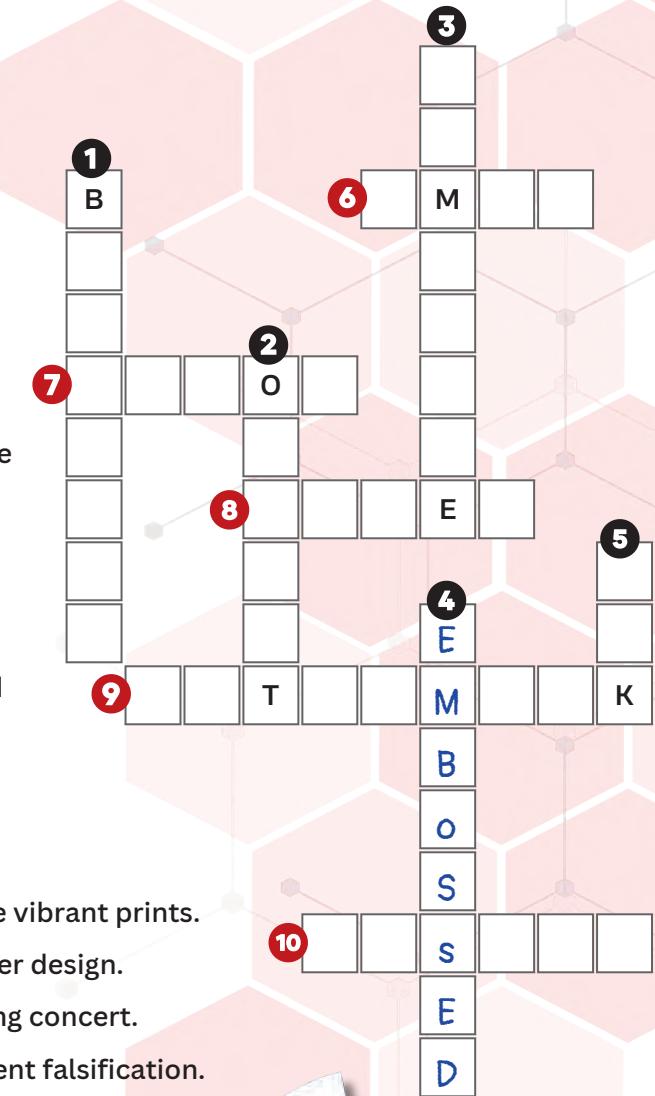
## Crossword



**Read** these sentences related to printing and **complete** the crossword.

### Down

- The travel agency handed out a colorful \_\_\_\_\_ to attract customers.
- They used \_\_\_\_\_ printing for the high-volume magazine run.
- To protect the document, she decided to \_\_\_\_\_ it.
- The wedding invitations were beautifully embossed with a floral design.
- The printer ran out of \_\_\_\_\_ just before she finished her project.



- color model to produce vibrant prints.
- background of her design.
- to promote the upcoming concert.
- to prevent falsification.
- on her bedroom wall.



Get into groups and find information about the careers you can study in the *Escuela de Industrias Gráficas*. Consider the utility of each career, the job market prospects, and all other relevant factors.



# escuela de industrias gráficas



Imagine one of your friends wants to enroll in one of these careers. Give him/her some advice by writing sentences using some of these structures.



- We think you should...
- If I were you, I would...
- You must....
- Why don't you....?



To enroll in any course, students need to fill out an application form. Choose one career and complete it. Then, share the document with a partner and check that all the information given is correct.

## APPLICATION FORM

escuela de industrias gráficas

ANEP

UTU

DIRECCIÓN GENERAL  
DE EDUCACIÓN  
TÉCNICO PROFESIONAL

Full name :

Place of birth :

DOB:

D

D

M

M

Y

Y

ID # :

Home address :

City/State : /

Phone number :

Email address :

Area of interest :

Prior studies :

Any remaining exams? :  No  Yes

Asking for accomodation? :  
(Give reasons)

Applying for scholarship? :

No

Yes, partial  
(tickets)

Yes, total  
(tickets, food & lodging)

If asking for food scholarship, do you have any dietary restrictions? :  No  Yes :

THANK YOU

# 5 Let's get loud!

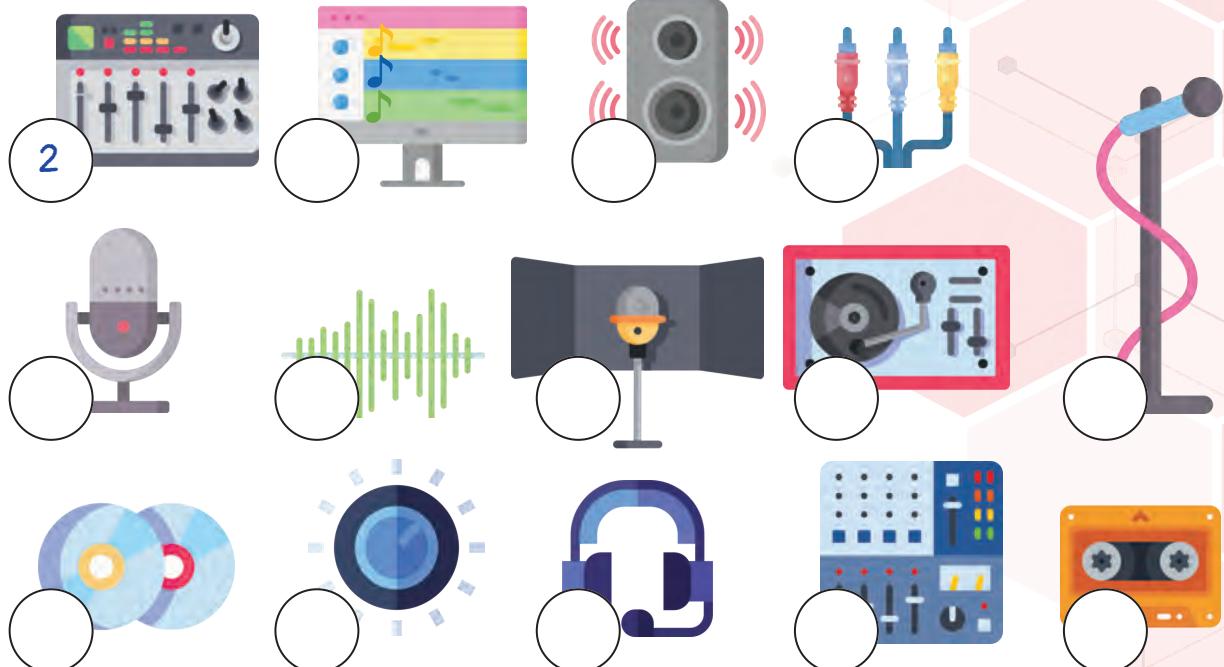


Nayeli is passionate about music and technology. She enjoys playing the piano and recording her music. Her dream is to learn how to do this professionally and become an expert in the area.



These are some of the items music professionals use, **match** the icons to their names.

- 1 music mixer • 2 equalizer • 3 AV jack • 4 headphones • 5 reflection filter
- 6 speakers • 7 turntable • 8 sound wave • 9 audio editor • 10 mic stand



Nayeli found a webpage with information about the items she would like to buy to start her project.



**Read** the *Go Groovin'* webpage to learn about *"8 home music studio essentials"* for every music aficionado.

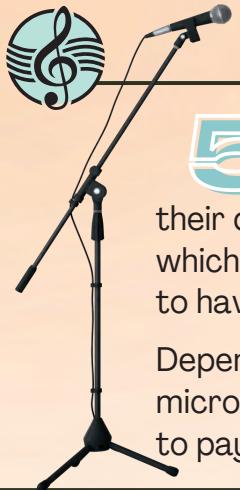
**GO GROOVIN'** Home Catalog About Search...    



## 8 HOME MUSIC studio essentials

A home music studio is a place where you feel inspired to create great tunes. You can achieve this setup with the below home music studio essentials.

<b>1 • laptop or computer</b> If you are interested in music production, desktops are the best option, although you could probably work with a laptop too, depending on the project. You will need at least 16 <b>GB</b> of RAM. The better the computer, the larger recording projects you will be able to do. Desktops are also better if you're more interested in music production than creating and recording your own music. 	<b>2 • audio interface</b> An audio interface is the intermediary between the analog language of sound and the digital language of your computer. Audio interfaces vary primarily in terms of the number of input sources (instruments or microphones) that can be recorded simultaneously.
<b>3 • studio monitors</b> Studio monitors are loudspeakers specifically designed for professional audio production applications. Studio monitors give a more <b>accurate</b> sense of the mix produced than standard speakers. The result is a recording studio where you can truly transform your music – and the minds of the listeners. 	<b>4 • DAW</b> The modern standard for music recording is called DAW. It stands for digital <b>audio workstation</b> . This is similar to the mixing board hardware. The good news is that you do not need to spend a lot of money on these devices because inexpensive devices may combine several of the functions. And don't forget to be comfortable and creative in finding the right solution to get really loud!!! 



## 5 • microphones and mic stands

Microphones are probably the easiest device to buy and you can check whether their quality is high or low by just using them. Nowadays, there are some microphones which can improve your sounds as if you were in a real **studio**. It is of vital importance to have one mic per instrument.

Depending on the type of music you want to produce, you may need standing microphones. Using your microphones right is also something you need to pay attention to see how you can reach the best quality possible.

## 6 • headphones

Headphones are very important to monitor your music as you record it but they are not recommended for mixing sounds. According to experts, **close-back headphones** can lead you to create a mix that sounds unnatural because they are too close to your ears.



## 7 • pop filters



Pop filters help eliminate popping sounds that occur when you pronounce certain words. These sounds are caused by the air we expel. A pop filter stops the air from hitting the microphone.

## 8 • reflection filters

When recording, your biggest enemy is sound reflecting off walls and other surfaces. To reduce this, you can use panels made of foam, rockwool, or glasswool. Reflection filters are a cheaper option than acoustic panels and are great for vocal recordings. They trap sound reflections before they enter your recording.

**No matter whether you are composing beats, recording vocals, or mastering a song, the right tools are essential to bring your music ideas to life. Remember, the most important part of a home studio is not equipment availability, but the desire and talent to create music. With that in mind, here are the fundamentals of music—let your musical journey begin!**

**Read the webpage above and say whether these statements are *true or false*. Rewrite the false sentences.**



- 1** If you are interested in producing music, desktops are the best option.
- 2** Digital audio workstation and audio interface cost a lot of money.
- 3** Standard speakers give a more accurate sense of the mix produced than studio monitors.
- 4** Your choice of microphone depends on the type of music you will play or create.
- 5** The most important device to get in order to create music is the reflection filter.

**Read** the text again and **explain** what these words and phrases mean.



**audio workstation** • **accurate** • **GB**  
**close-back headphones** • **studio**

*In which way can technology and music be related?*

People who are interested in both music and technology may want to find a job that enables them to combine these two passions. There are differences in responsibilities and skills involved in music technology jobs. Some of them are about singing and composing music while others are more technical in terms of music production.



*What careers can Nayeli pursue to fulfill her dream?*

**Surf the internet, complete** the chart with information about these careers and **choose** the most suitable for Nayeli.



**Sound Engineering Technician**

**music composer**

**musician**

**Skills**

**Tasks**

**Where to study**

**Read** this situation and discuss the options with your partners.



Nayeli has saved US\$ 600 (six hundred American dollars) to purchase equipment.

How many devices can she buy with this amount, and how can she obtain the additional funds needed for the remaining purchases? Use the internet to research various options and prices, and brainstorm creative strategies for both saving and earning more money.

## Project Sharing my passion with Nayeli



Nayeli found a very interesting video online. In the video, the people showed innovative approaches for creating music. **Watch** the video and **take notes**.



**Get in pairs** and **explore** alternative devices or methods for creating music. These alternatives don't necessarily have to be electronic or modern; instead, they should be creative.



**Create** a video or a project to let Nayeli know what you can do together.



# 6 Projecting ideas

Simon loves movies and watching videos online. Last week he went to the tech store and bought a new device.

Have a look at the device and **describe** it. What is it?



Photo by Aldo Rodríguez



**Read** what his friends said when Simon showed them the device.



I think it's one of those mini projectors for watching YouTube on your bedroom ceiling



Maybe it can be used for those all-night gaming sessions? Just imagine playing Fortnite on the side of your house with this thing!



I suppose it is some kind of a portable projector. You know, like when you want to have a movie night on the beach or in the backyard.



Good guesses! This is a projector!

**Get into groups** of three and **discuss** the following three potential reasons why he wanted to buy the device.



- a-** Because he aspires to become an entrepreneur and plans to host movie screenings, charging his friends a fee for entry.
- b-** Because he desires to enjoy leisure time and intends to entertain friends by hosting movie nights at his house.
- c-** Because he aims to purchase items and resell them at a profit, saving money to fund a vacation to the US next summer.



Let's see what he is actually doing with this projector. **Listen** to their conversation and **check** your predictions.



**Listen** again and say whether these statements are *true or false*.



- 1** The students are talking about organizing a movie night in the classroom.
- 2** They are planning to advertise the event on the internet only.
- 3** They are also considering offering the projector to be used at other events.
- 4** They don't think this project will impact their community.
- 5** Simon is convinced this project will be successful.

What would you use the projector for? **Share** ideas of how you would use the projector and if they wanted to earn money out of its use.



- In my opinion ... .
- I think ... .
- Maybe ... .
- I believe ... .
- From my point of view, ... .
- My impression is that ... .
- I have the feeling that ... .
- I have no doubt that ... .
- I would say that ... .

# How to choose the best projector?

Before buying his projector, Simon did some research about different devices.

Match the qualities listed in this infographic to the explanations below.



## brightness

Choose a projector with a high number of lumens, which measure the light output, to ensure a clear image even in bright rooms.

If you need audio, check if the projector has built-in speakers or can connect to external audio systems. Considering a home theater system is a good option.

Clarity and detail are improved with higher pixel counts. LCD and LED projectors can offer high-resolution options like 1080p for HD and 4K for ultra-high definition. More pixels result in better image quality.

Think about the purpose of the projector, such as for educational lessons, business presentations, or watching movies at home.

Look for a projector that provides sharp and vibrant images. A higher contrast ratio means better differentiation between dark and light areas.

Ensure the projector has the right ports to connect to your devices. Common connectors include VGA for older computers and HDMI for high-definition video and audio. Also, check for wireless options like Bluetooth or Wi-Fi for easy connectivity.



# 7

# How do I get there?

Listen to Camila talking about Nico and Diego and **complete** the missing information.



Nico and Diego are dreaming about their 1. What would they do if they had a lot of money? For example, Diego says he would buy a 2. car to travel around. Nico laughs because he imagines Diego getting 3. all the time. Nico remembers that his father used to travel around carrying a 4. Nowadays, with the cell phone, you can access GPS and maps, and you can get anywhere without even accessing the 5. .

Have you ever seen a road map? Do you know how to read one?

Do you use GPS apps when you travel? Nico has found an article about GPS. **Read** the first part of an article and **answer** the following questions.



- 1 What is GPS?
- 2 What organization is in charge of it?
- 3 What is Navstar Global Positioning System?
- 4 When did the program start?
- 5 Why did it become popular worldwide?

## ALL ABOUT GPS

The Global Positioning System (GPS) is a navigation system that uses satellites in space to help people find their way. It includes a

group of satellites sending out signals, along with stations on the ground and control centers in space to manage them.

The U.S.A. Department of Defense (DoD) is in charge of operating and looking after GPS. For public use, the U.S. Coast Guard helps out and listens to any issues users might have. Also, the Federal Aviation Administration (FAA) supervises GPS usage in air travel and listens to problems reported by pilots.

Started in 1973, the GPS, also known as the Navstar Global Positioning System, was initially a project involving both civilian and military interests. Over time, it became popular worldwide, offering reliable navigation and timing for many different activities. Thanks to its accessibility through affordable devices, GPS is used in various fields worldwide.

## How does GPS work?

Read the second part of the article and help Nico find out how the GPS works.



its accessibility through affordable devices, GPS is used in various fields worldwide.



Satellite navigation uses a network of satellites that send radio signals from medium earth orbit. The GPS system has 31 satellites and is managed by the United States. There are other similar systems, called Global Navigation Satellite Systems (GNSS). These include GLONASS from Russia, Galileo from the European Union, and BeiDou from China. These systems are free to use by everyone worldwide and follow standards set by the International Civil Aviation Organization (ICAO).

The basic GPS service is accurate to about 7.0 meters, 95% of the time, anywhere on or near the Earth's surface. Each of the 31 GPS satellites sends signals that help receivers, like your phone, figure out their location and time by using signals from at least four satellites. These satellites have atomic clocks that provide very precise time. The signals include the time they were sent and other data to help calculate satellite positions for accurate positioning.

Receivers calculate the distance from the satellite by comparing the time the signal was sent with the time it was received. They also adjust for delays in the signal caused by the ionosphere and troposphere. With information from three satellites and knowing where the satellites were when the signals were sent, the receiver can find its own position in three dimensions. Usually, this needs an atomic clock synced to GPS time, but using signals from a fourth satellite allows the receiver to avoid needing its own atomic clock. This way, the receiver uses signals from four satellites to determine its latitude, longitude, altitude, and time.



How would you explain what GPS is to a person that knows nothing about technology?

**Get in pairs** and **come up with** a simple explanation.

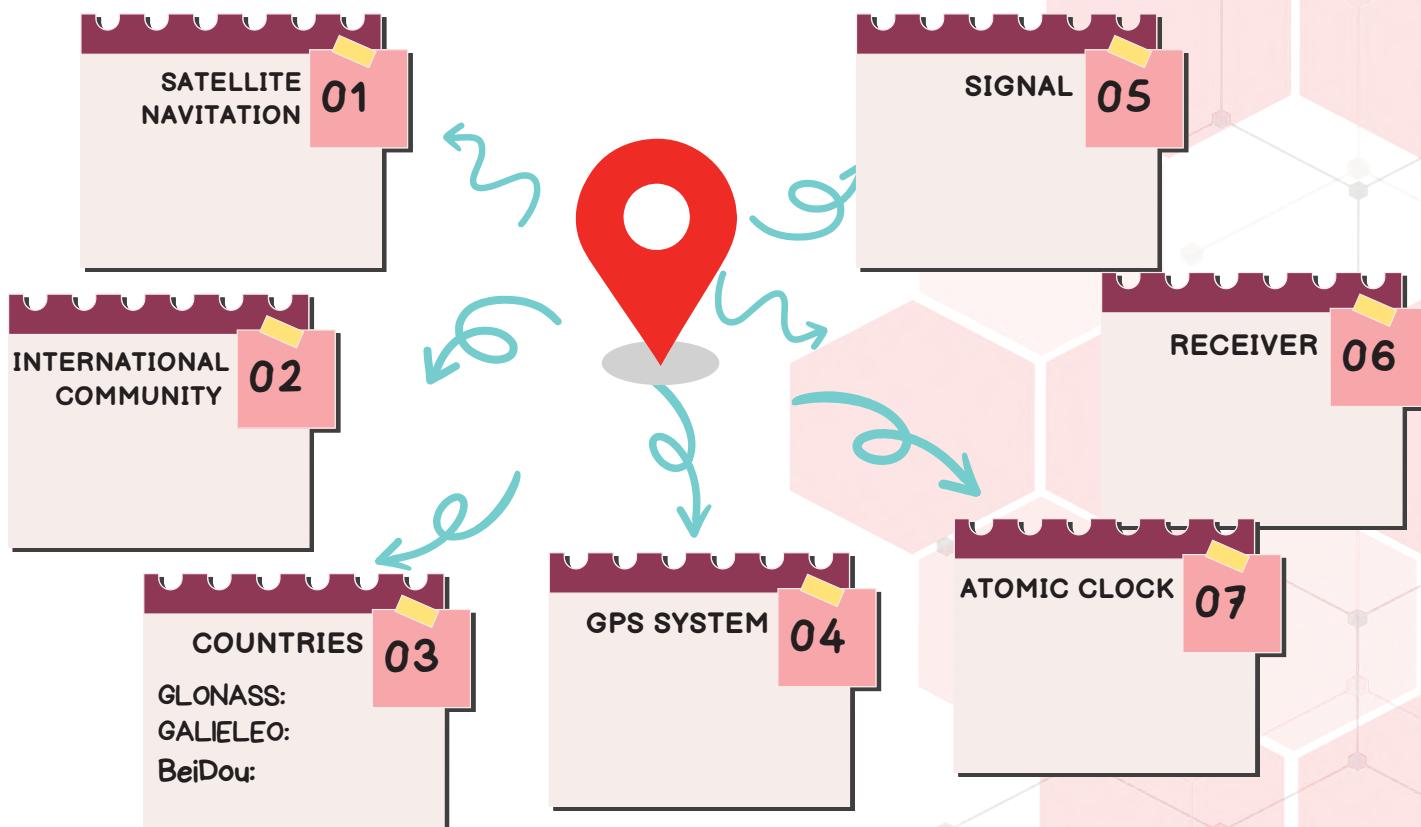


### useful language

- The GPS is used to...
- This is a system that...
- It helps us by...
- It consists of...
- The main components are...
- In summary, this system enables us to ...
- It is reliable and widely used for...



Read the article again and **complete** the mind map with the most important information from it.



Match the icons to the words/phrases below. Think about how they connect to the GPS system.



10 cardinal points  
route  
satellite  
coordinates

satellite dish  
compass  
location pin  
tracking device

radar  
street view  
sign post  
tracking web

Let's use our GPS apps!



**Get in pairs** and **use** your cell phones or computers to **choose** a place you would like your partners to visit.



- Find the address or phone number of a place.
- Find the opening hours of a place.
- Plan a route and compare the different options proposed online.
- Share their location with others.

**Get in pairs** and **find out** what a place looks like by using Street View. Swap partners and **share** what you have found.



## Project



### Virtual Tour

**Choose** one of these four places and take a virtual tour by using your GPS app. **Jot down** something interesting you found out in that place.



# 8 How to stream

Nayeli and Inés are planning their winter holidays. They would love to know about an ideal holiday you may plan.

Take a piece of paper and **write** down:



- 1- a place you would love to go
- 2- 3 activities you would love to do
- 3- 1 person you would love to go with
- 4- a word describing how you would feel there



**Get in pairs** and **use** the information on the papers to tell your partners about the holidays you would love to have.



Nayeli and Inés need money to afford their ideal holidays.

**Listen** to them and **tick** the ideas they mention.



Do they talk about:

- a-  the equipment they need?
- b-  the platform they will use?
- c-  the target audience?
- d-  the concrete topics they will talk about?
- e-  strategies to earn money?





**Listen** again and answer *true or false*.

- 1 The girls think that streaming online is an easy way to earn money.
- 2 They mention that having sponsors could be one way to earn money.
- 3 They think gaming streams are too boring because there are too many of them.
- 4 Removing haters will be a good idea to keep the values and philosophy of their work.
- 5 Music and cooking can help them reach a larger audience.

**Listen** to the last part of the conversation and **complete** the missing words.



**Nayeli**: I like that idea! We can have different themed streams on different days, which will keep things fresh and exciting. But, do we need any special equipment to start streaming?

**Inés**: Well, we'll need a 1 \_\_\_\_\_ computer or gaming console, a reliable internet connection, and a good-quality microphone and 2 \_\_\_\_\_. We can start with what we have and invest in better equipment later if we find success.

**Nayeli**: Got it! So, when should we start our streaming 3 \_\_\_\_\_?

**Inés**: Let's set a date to begin. How about this weekend? That way, we'll have some time to prepare and promote our streams on social media platforms.

**Nayeli**: Sounds like a plan! We should create accounts on streaming platforms like Twitch or YouTube and share our stream schedule and updates with our friends and family.

**Inés**: Absolutely! And let's not forget to interact with our viewers during the stream, respond to their comments, and make them feel involved. That will help us build a 4 \_\_\_\_\_ audience.

**Nayeli**: I'm really excited about this, Inés! Not only will we earn money for our holidays, but we'll also have a lot of fun connecting with people who share our interests.

**Inés**: I couldn't agree more, Nayeli! It's going to be an amazing experience. Let's work hard, be 5 \_\_\_\_\_ with our streams, and who knows, we might even turn this into something bigger in the future!

**Nayeli**: That's the spirit! Let's go all out and make our streaming venture a huge success. Our 6 \_\_\_\_\_ dreams are within reach!

**Inés**: Absolutely, Nayeli! Together, we can achieve anything. Let's start streaming and make those dreams come true!

Look at the images and **match** them to the words below.



2 content creator •  equipment •  platform •  subscribe •

live stream •  audience •  video editing •  broadcast •  channel •

The girls made their own way to earn money for their dream holidays. What would you do?

**Get into trios** and **think** of creative ways to make money.

**Think** about:

- ▶ the activity you will do.
- ▶ the equipment you need.
- ▶ how you will earn money.
- ▶ how to engage people in the activity.



**Prepare** a short presentation in which each participant of the group takes part.

## Project

### What are your plans to earn money for the holidays?



Create a streaming session. Stream live inside the classroom with your peers, for example using Conference, and the other students need to interact with you. Decide on the topic of the streaming session and find information about the topic to be ready to answer the questions.

# 9 Devices for everyone

Look at these 5 news headlines.

 **thinkverse.com**  
Home > Human-Computer Interaction > Universal Access  
**“DIY” Prototyping of Teaching Materials for Visually Impaired Children: Usage and Satisfaction of Professionals**  
EDUCATION TECHNOLOGY  
**3-D PRINTING IN EDUCATION** 

**EDUCATION TODAY**  
**CREATING INTERACTIVE 3D PRINTED MODELS WITH TEACHERS OF THE VISUALLY IMPAIRED**  
  
Innovative project empowers educators to create tactile learning tools for visually impaired students.

**Designing 3D-printer Models for Students with Vision Impairment or Low Vision**  
By PROF. JOAN AVANT

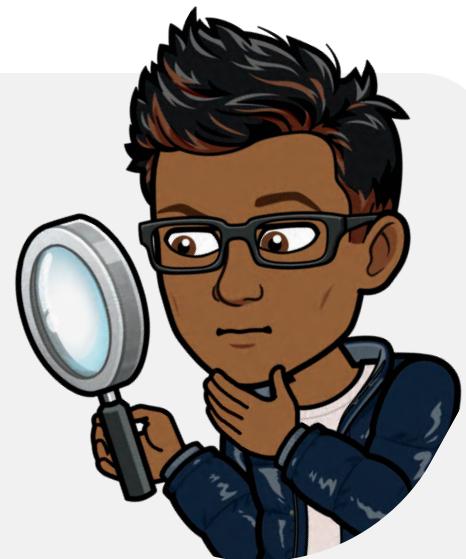
**DESIGNING INTERACTIONS FOR 3D PRINTED MODELS WITH BLIND PEOPLE**  
  
Researchers developed interactive 3D models for blind individuals.

Get into groups, discuss these headlines and find similarities among them.



## WEBQuest:

**How has the 3D printer helped visually impaired students access education?**



### 1 TASK

- **Get in groups** of 3-4 students.
- **Research** *the impact of 3D printing on the education of visually impaired students.*
- **Create** a presentation about the topic.
- **Present** your work to the class.



## RESEARCH GUIDE

### 1 Understanding 3D printing

- Research the basics of 3D printing. What is it? How does it work? What are its capabilities and limitations?
- Suggested search terms: *"Basics of 3D printing"*, *"How does 3D printing work?"*

### 2 Impact on accessibility in education

- Investigate how 3D printing has been used to create accessible educational materials for visually impaired students. Look for studies, articles, and success stories.
- Suggested search terms: *"3D printing impact on visually impaired education"*, *"3D printed educational tools for blind students"*, *"Benefits of 3D printing for visually impaired"*, *"Challenges of 3D printing in education"*.

### 3 Examples of 3D-printed educational tools

- Find specific examples of 3D printed models and tools designed for visually impaired students. What subjects do they cover? How do they help in learning?
- Suggested search terms: *"Examples of 3D printed tools for blind students"*, *"tactile learning tools 3D printing"*

**Present your teacher with at least 5 sources you used to carry out your research. These sources can be found on the internet, e.g. an article or a video or they can talk with NGOs to know more about the topic.**



## PRESENTATION

**Create** a presentation based on your findings. Use visuals and examples to illustrate your points. **Include** all the points from the previous section.

- Introduction to 3D printing
- Impact on accessibility in education
- Examples of educational tools
- Your personal opinion about the topic.

**Present** your work to the class.



What is your opinion about this topic? 



## 4 WRITING

**Write** a report or an article discussing the topic.

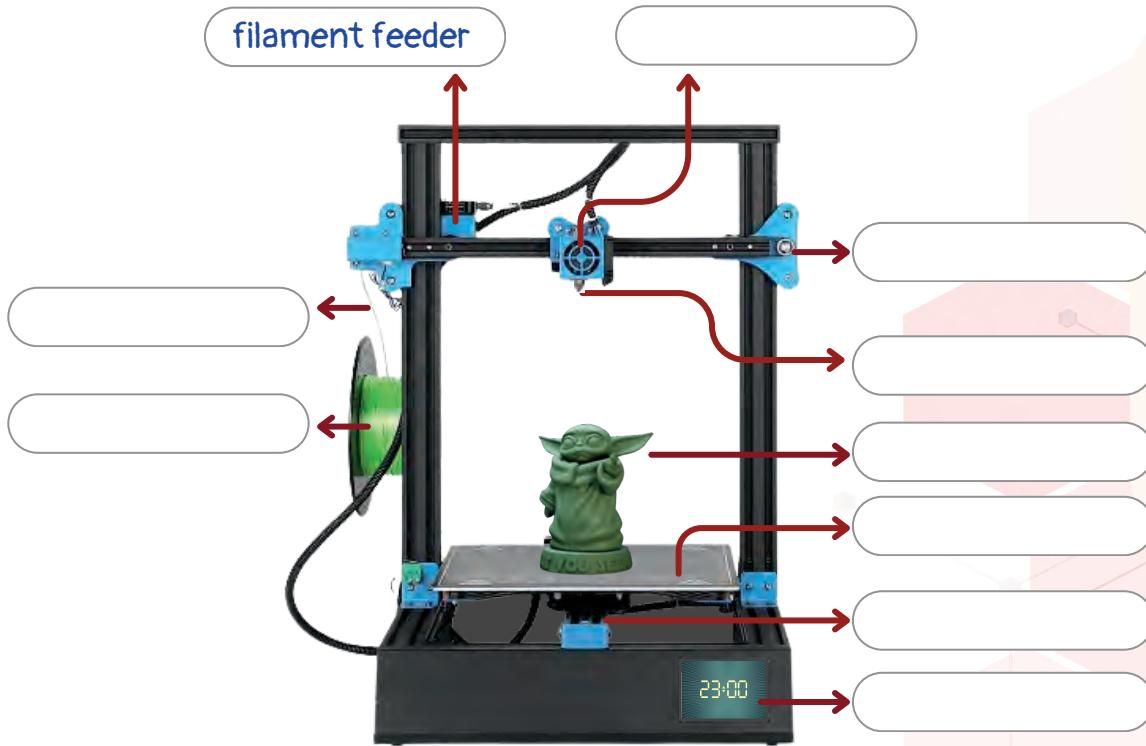
The article or report should be between 120–150 words.

- 1 Divide the information you have according to the topics.
- 2 Write a topic sentence for each paragraph.
- 3 Assess the draft of each paragraph.
- 4 Ask your peers to read the first version of the article or report and make comments so the authors can improve their paper.
- 5 Write the final version of the article or report.



Handwriting practice lines for the writing task.

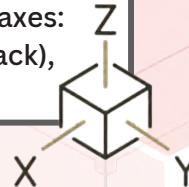
**Label** the parts of the 3D Printer below using the terms in the box.



- digital display
- filament feeder
- hot end/nozzle
- filament spool
- filament
- cooling fan
- XZ axis motor
- Y axis motor
- hot bed
- 3D model



**Did you know?** In 3D printing, the XYZ axis method refers to the way a 3D printer builds objects layer by layer. The printer moves along three axes: the X-axis (left to right), the Y-axis (front to back), and the Z-axis (up and down).



## Project

**It's time to share this information with the community.**



Create a class magazine including the articles and reports from all the students. Then, make copies to distribute schoolwide.

You can ask the school principal to set a time for a presentation of the articles to raise awareness of how technology has changed the lives of the visually impaired and make others think about that.



# 10 How to choose the best output device for your PC

Nico and Nayeli are in class. The teacher asks them to take a piece of paper and when she mentions a topic they will have a minute to jot down elements.

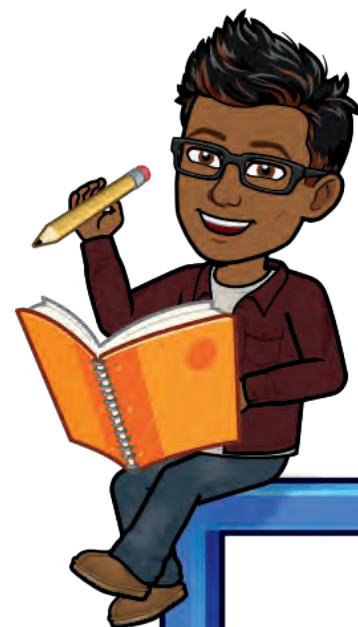
The teacher says.



Round robin



**Form** groups of four. Each member should **name** one device. If the other members already have that device on their list, they **tick it off**. If not, they **add** it to the list. After a few minutes, the group will have a complete list of output devices.



Take a look at the picture of the gang. They want to buy some peripheral devices for their computer. Which one should they buy?



**Get in pairs. Choose** three of the characters and **think** which particular peripheral device would be appropriate for them. **Explain** your reasons.

**Take notes.**




Let's remember the gang's information.

<b>Pablo</b> likes art and design, helps his uncle in his graphic design company.	<b>Duma</b> is interested in cars, loves repairing cars. Wants to be a mechanic.	<b>Nayeli</b> loves music, plays the piano and composes. She wants to play in the Sodre orchestra.
<b>Inés</b> is interested in computing, and video games. Wants to be a video game developer.	<b>Simon</b> loves movies and video games. She wants to be a personal trainer.	<b>Emma</b> is interested in the environment. She wants to explore solutions to reduce human impact on our world.
<b>Diego</b> is interested in sports, healthy life. He wants to be a sportsman.	<b>Guidaí</b> loves fashion and make up. She wants to be a make up artist.	<b>Freddie</b> wants to be a barber. He loves to learn about the latest hairstyling and grooming techniques.
<b>Nico</b> is interested in business and accounting.	<b>Camila</b> wants to work in the country and apply computers to country work.	<b>Stephen</b> loves studying and wants to go to the university to be a lawyer. He is blind.

Do you recognize these professions? **Write** their names next to the correct number.



1.
2.
3.
4.
5.
6.
7.
8.



Have you ever thought that different jobs may need different output devices? **Think** about the professions above.



**Share** your ideas in a conversation circle.



6 students sit at the front of the class and talk for one minute.

**TIP!**

- Every student has to speak.
- The rest of the class has to remain silent.
- After a minute, the teacher claps hands and invites 6 new students to participate.
- The teacher repeats the activity until every single student participates.



Nayeli and her friends are going to sit for the B2 English Exam with *Dirección de Políticas Lingüísticas de CODICEN*. Help them with this Use of English exercise.

Read the text. Use the words below to form a word that fits in the gap.

1 base 2 represent 3 architecture 4 showcase

5 medicine 6 interaction 7 scan 8 specialize

# OUTPUT devices

Output devices are hardware components that display or produce information generated by a computer or other electronic device. Different occupations may require specific output devices 1 based on their tasks and requirements. Here are some common occupations and the output devices they might use.



## GRAPHIC DESIGNER

- **High-Resolution Monitor:** Used for precise image and graphic editing.
- **Graphics Plotter:** printer used to print large-format designs and illustrations.
- **Color Calibrated Printer:** For precise color 2 in printed materials.



## ARCHITECT / ENGINEER

- **Large Format Plotter:** Used to print detailed 3 or engineering drawings and blueprints.
- **3D Printer:** For creating physical prototypes and models.



## PHOTOGRAPHER/VIDEOGRAPHER:

- **High-Resolution Monitor:** For editing and retouching images and videos.
- **Photo Printer:** For producing high-quality photo prints.
- **Projector:** For 4 images and videos to clients or audiences



## HEALTHCARE PROFESSIONAL:

- **Imaging Display:** Specialized monitors for accurate viewing and analysis of 5 images (e.g., X-rays, MRIs).
- **Printer:** Used for printing patient reports, prescriptions, and documents.



## TEACHER / EDUCATOR

- 6 Whiteboard: Allows teachers to present and interact with digital content during lessons.
- **Projector:** For displaying slides, presentations, and videos to students.



## BUSINESS CLERK

- **Receipt Printer:** To print receipts for customers.
- **Barcode Scanner:** For 7 products during checkout.

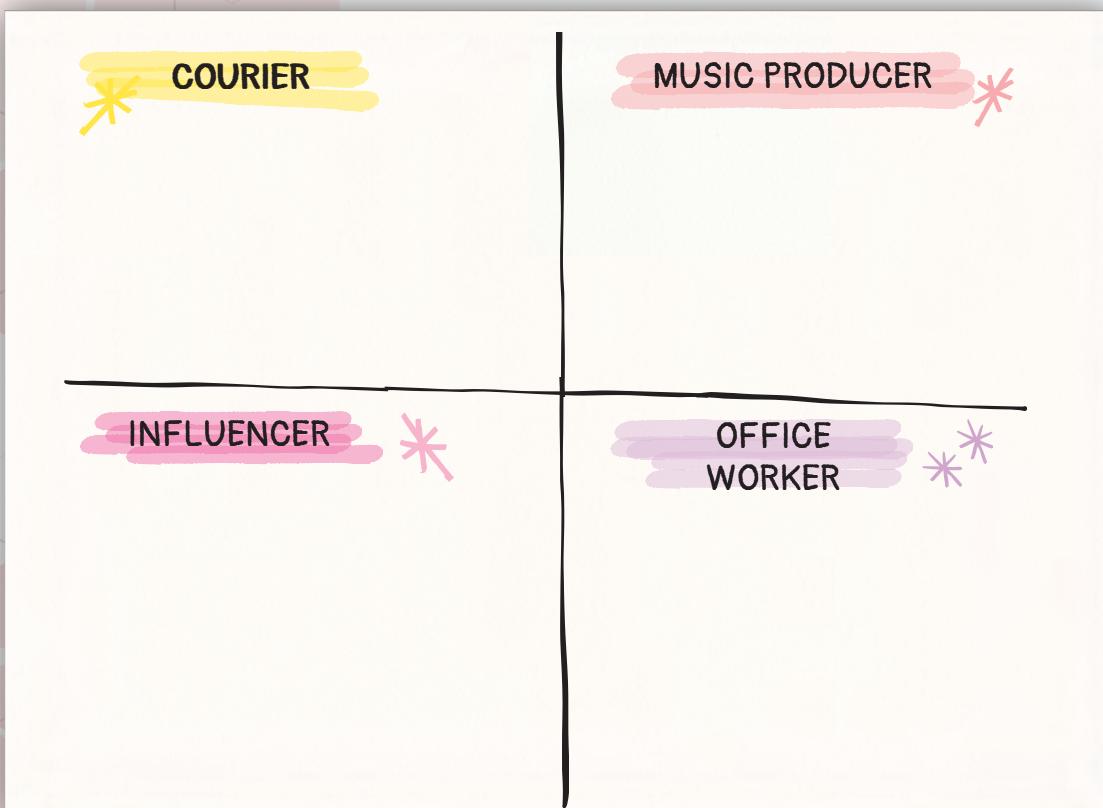
These are just a few examples, and there are many other occupations with specific output device needs. The choice of output devices depends on the tasks and requirements of each profession. As technology advances, new 8 output devices may emerge to cater to specific professional needs.

What about other occupations?

**Get into groups** of three and **list** the tasks and requirements for each occupation, together with the ideal output device for them.



- Music producer
- Office worker
- Courier
- Influencer



**Share** your ideas with other classmates.



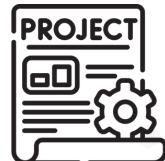
**Were the lists similar or different?**



## **Project** Output devices in my life



**Write** a paragraph reflecting on the output devices you use in your daily lives. **Use** these questions to help you.



- Which output device do you use the most, and why?
- How does this device make your life easier or more enjoyable?
- Can you think of any improvements or future output devices that could enhance your daily experience?



In this unit, I learned that...

Something I need to revise is...

my favorite part of this unit was...

I felt...



# UNIT 4

## *storage*



# 1 Why is it important?

Look at the pictures and describe them.



1



2



3



4



The pictures show the evolution of how things are stored, especially books.

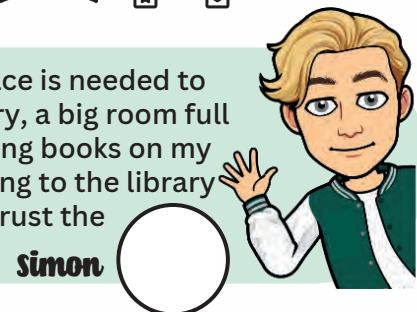
What do you prefer? Paper books or e-books?

Some of the characters have been discussing this topic too.

Read these texts and match the pictures to the characters.



The pictures show how books have changed over time and how much space is needed to keep all that information. This picture makes me think of the school library, a big room full of books that could be kept on a computer or accessed online. I like reading books on my phone, but sometimes my eyes feel tired. When I have exams, I prefer going to the library for help. It's a safe place where I can ask the librarian for assistance and trust the books they have.



Wow! I really like this picture. It's hard to describe how amazing it feels to walk into a bookstore and smell the new books. Even though carrying all my paper books around school can be difficult, I still prefer reading and studying with physical books. It's easier for me to study and understand the content as I flip through the pages. You might think I'm a bit strange, but the physical act of turning pages is also important for my brain.

I think these photos are amazing because they illustrate how society has changed with technology. Even though things have evolved, people still enjoy reading books. However, instead of paper books, they now read on electronic devices, which is so convenient! I'm a big reader myself and I manage to finish a book every week. I used to read with my family in the past, but now I prefer to read alone. I especially enjoy science fiction books, but I also like reading true stories because I find it fascinating to learn about people and their lives.

Freddie



I really like the picture with both books and ebooks together. I often find myself unsure about which I prefer. Some days, I enjoy reading e-books because it's easy to use the dictionary and I can listen to stories if I get tired. But other times, I prefer reading paper books. It might sound strange, but I imagine who read the book before me, how it affected their life, and what they felt after reading it. I'm not obsessed with technology, but I appreciate that my e-books always stay in good condition, and I don't have to worry about putting them back on the bookshelf.

Nayeli

Read the texts again and **complete** the following table.



#### Arguments in favor of paper books

#### Arguments in favor of e-books

#### Arguments against paper books

#### Arguments against e-books

Add one more argument to each box.

 **Match** the words below to the different parts of the e-reader.

- \_\_\_ page back button
- \_\_\_ go back button
- \_\_\_ home button
- \_\_\_ menu button
- \_\_\_ screen
- \_\_\_ page forward button

Simon, Inés, Freddie and Nayeli have shared several ideas with you.

**Choose** two ideas given by the characters and say whether you agree with them or not.

**Use** the SOS BOX to help you.

**Get into trios** and **share** your opinions about whether to read paper books or e-books.



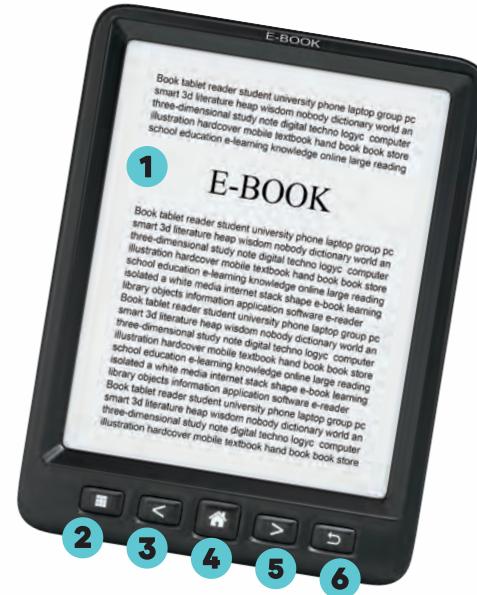
## Project



### Paper or paperless?

Whether to read e-books or paper books is something that researchers and pedagogues do not agree with.

- Conduct a poll within the school and ask 100 people whether they prefer to read books or ebooks.
- After the research is finished, **report** the results to the class.



#### ASKING FOR OPINION

What do you think about ...? / Do you agree with me? / What's your opinion about ...?  
What about you?

#### OFFERING OPINION

I think (that) / In my opinion... / The way I see it... / From my point of view... / As far as I'm concerned...

#### AGREEING

I agree. / I totally agree. / I think so. / You are right. / I get your point.

#### DISAGREEING

I'm afraid I disagree. / I'm sorry but I don't agree with you. / I agree but up to a point. / I see your point, but...



# 2 Features

Look at the pictures and describe them. How can they be related to computers?



In which way can storage at home and in computers be related?

Let's go over the types of storage devices you know.

Take a piece of paper and **write down** all the storage devices you can remember in one minute.



Get in pairs and **compare** your lists.



Complete a chart stating the differences between three storage devices in terms of speed, capacity and portability.

STORAGE DEVICE	1	2	3
SPEED			
CAPACITY			
PORTABILITY			

**Find** ten words related to storage in the word search.



**Complete** the definitions with the words you found.

B	P	W	Z	N	Q	V	D	R	Y	X	B	V	R
V	Z	D	L	H	A	R	D	D	R	I	V	E	J
H	D	D	L	H	C	N	C	B	Z	C	G	K	F
Q	V	D	Q	M	F	B	D	S	L	G	I	M	H
R	B	S	A	H	E	X	T	E	R	N	A	L	T
D	G	F	L	A	S	H	D	R	I	V	E	U	R
D	H	P	O	R	T	A	B	L	E	L	C	M	A
K	A	W	D	A	Z	C	W	V	V	C	A	E	N
V	X	T	D	B	F	R	D	A	O	L	P	M	S
I	P	P	A	K	I	O	G	J	B	O	A	O	F
N	V	J	T	V	S	N	D	B	T	U	C	R	E
J	B	A	C	K	U	P	D	F	J	D	I	Y	R
Q	B	B	G	T	V	F	G	U	M	J	T	D	K
W	D	T	U	K	A	Q	M	F	T	V	Y	U	I

- 1 data Information stored in a computer or storage device.
- 2  A device inside the computer that holds large amounts of data.
- 3  A part of the computer that stores data temporarily for quick access.
- 4  A small tool for saving and moving data between different computers.
- 5  A type of storage device that can be easily carried and used with different computers.
- 6  A storage device that is not inside the computer but can be connected when needed.
- 7  A way to save files on the internet, so they can be accessed from different devices.
- 8  The process of moving data from one place to another, like from a computer to a storage device.
- 9  A copy of data made to protect against losing it.
- 10  The maximum amount of data that a storage device can hold.

In the technology field, it's very common to use acronyms to name hardware components. **Write** what these acronyms stand for.

**SSD**

**Solid State Drive**

**USB**

**Universal Serial Bus**

**SATA**

**Serial ATA**

**HDD**

**Hard Disk Drive**

**RAM**

**Random Access Memory**

Can you think of other acronyms related to hardware?



What are the key features of storage devices?

**Get into small groups.** Each member of the group will **perform** a task.



**Student 1 - Capacity**

Explain the concept of storage capacity, including how it is measured in gigabytes (GB) and terabytes (TB).

**Student 2 - Speed**

Mention the different factors affecting the speed of storage devices, such as RPM for HDDs and data transfer rates for SSDs and flash drives.

**Student 3 - Durability**

Explore the durability and reliability of various storage devices, emphasizing the impact on data retention and long-term usability.

**Student 4 - Interface Standards**

Introduce different interface standards like SATA, NVMe, USB, and how they affect data transfer speeds.

The different features of storage devices have a certain impact on performance.

Each group **writes** a short paragraph explaining how the features of storage devices impact the overall computer system.



For example:

The interface standards of storage devices, like HDDs or SSDs, affect how quickly data can move between the storage and the computer. For example, a faster interface, such as SATA or NVMe, transfers data at higher speeds. This means the computer can load files, programs, and games faster, making the system feel faster. On the other hand, if the interface is slower, the computer will take longer to access and use the data, which can cause delays in performance.

**Think** of a situation in which high capacity storage devices have more advantages.

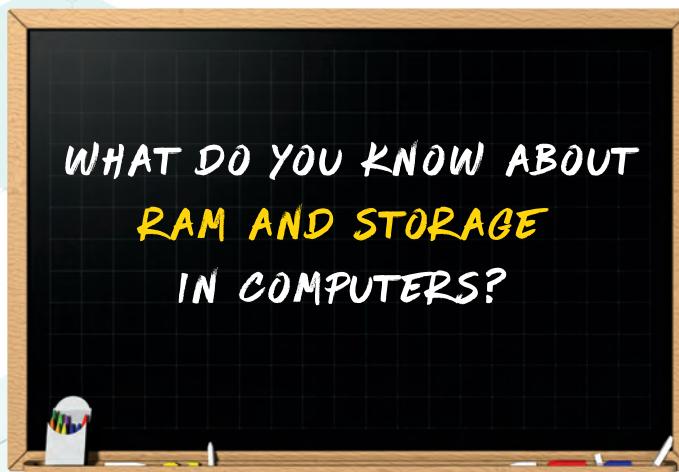


**Surf the net** and find information about emerging storage technologies or trends that could impact future storage devices.



# 3 RAM vs Storage

Simon's teacher asked him to answer this question for homework.



**Share** your ideas and previous knowledge to help him complete his homework.

**Get into small groups** (3-4 students per group), **surf the net** and **complete** the activity.



**Research** and find information about RAM and storage in computers.



- Look for information about their functions, characteristics and usage.
- You can search educational websites, articles and computer science journals.
- Highlight the key differences and similarities between RAM and storage.

With the information you gathered, **answer** these questions.



- 1 Why is RAM considered "temporary" memory, while storage is considered "permanent" memory?  
\_\_\_\_\_  
\_\_\_\_\_
- 2 How do RAM and storage work together to enhance a computer's performance?  
\_\_\_\_\_  
\_\_\_\_\_
- 3 Can you think of real-life analogies that help understand the concepts of RAM and storage better?  
\_\_\_\_\_  
\_\_\_\_\_

**Read** the following sentences and decide whether they describe *RAM* or *Storage*.



- It helps the computer run multiple programs at the same time.
- It holds your files, documents, photos and videos.
- When the computer is turned off, everything in it is lost.
- It keeps your data even when the computer is powered off.
- It is measured in gigabytes (GB) or terabytes (TB) and determines how many files you can save.

How did RAM and storage evolve over time?

**Get into groups** and **prepare** a presentation about one of these topics.



- 1 The evolution of RAM and storage technologies over time and their impact on computer performance.
- 2 Future trends in RAM and storage technologies and how they might shape the future of computing.
- 3 Different types of RAM (e.g., DDR3, DDR4) and storage devices (e.g., HDD, SSD) and their advantages/disadvantages.



# 4 Protect it or lose it

Match images and situations.



AI-powered images with Canva

- a• I think somebody was looking at my transaction at the ATM. \_\_\_\_\_
- b• I received a phone call asking me for the password to my bank account. \_\_\_\_\_
- c• The nurse left my medical records at the administration office for me to pick them up. \_\_\_\_\_
- d• I sent my PC to be repaired, and after that, I noticed that somebody was accessing my social media accounts. \_\_\_\_\_
- e• I usually give my debit card to my coworkers to withdraw money or pay my bills. \_\_\_\_\_

What are the potential problems for the people in these situations? **Discuss** with a partner.



The people in the previous situations are having issues with data protection.



**Read** the causes of data loss and go back to the five situations in the previous part of the class.

What type of cause can be attributed to each one?



## SAFEGUARDING YOUR DATA: *protecting what matters most*

BY JOHN CALLUM

**D**ata is crucial in today's digital age, both for businesses and individuals. Whether it's personal memories, important documents, or critical business information, data storage plays a vital role in preserving and protecting this valuable asset.

However, data loss can be devastating, leading to significant financial and emotional consequences. To avoid the risk of losing your data, it's essential to understand the causes of data loss and implement preventive measures.



PAGE 1

### Causes of DATA LOSS

- 1 • **HARDWARE FAILURES** Hard drive failures and other mechanical issues can lead to data loss. Regular maintenance and backup solutions can help prevent this.
- 2 • **HUMAN ERRORS** Accidental deletions and improper handling of files can cause data loss. Educating users and establishing protocols are crucial.
- 3 • **SOFTWARE CORRUPTION AND MALWARE ATTACKS** Viruses and malicious software can compromise data security. Regular updates and strong security measures are vital.
- 4 • **NATURAL DISASTERS AND ENVIRONMENTAL FACTORS** Floods, fires, and other disasters can damage data storage devices. Off-site backups and cloud storage can provide protection.
- 5 • **THEFT AND UNAUTHORIZED ACCESS** Unauthorized access and theft can lead to data breaches and loss. Physical security and encryption help prevent this.
- 6 • **POWER FAILURES AND ELECTRICAL SURGES** Power disruptions can cause data corruption. Uninterruptible power supplies and surge protectors can mitigate risks.

1. **REGULAR DATA BACKUPS** Create duplicate copies of data following the 3-2-1 backup rule for redundancy.
2. **UTILIZE REDUNDANT STORAGE SOLUTIONS** RAID configurations and cloud storage offer extra protection against hardware failures.
3. **IMPLEMENT DATA ENCRYPTION** Encrypt data to safeguard against theft or unauthorized access.
4. **PRACTICE SAFE COMPUTING HABITS** Keep software and systems updated, be cautious with email attachments and use antivirus software.
5. **ESTABLISH ACCESS CONTROLS AND USER PERMISSIONS** Limit user access to critical data through permissions.
6. **IMPLEMENT DATA LIFECYCLE MANAGEMENT** Properly manage data throughout its lifecycle.
7. **CONDUCT REGULAR DATA INTEGRITY CHECKS** Verify data integrity with periodic checks.
8. **SECURE PHYSICAL STORAGE LOCATIONS** Store devices in safe areas and consider off-site storage options.
9. **EDUCATE USERS ON DATA HANDLING BEST PRACTICES:** Train users on data backup and security practices.
10. **REGULARLY TEST DATA BACKUP AND RECOVERY PROCESSES:** Ensure backup and recovery procedures work effectively.

By following these best practices, you can reduce the risk of data loss and ensure the safety and availability of your valuable information. Remember, prevention is key to safeguarding your data effectively.

## Answer the following questions.

1 Why should you conduct regular data integrity checks?

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2 Why is it important to educate users about data protection?

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3 Considering the variety of causes for data loss, which do you believe is the greatest threat today? Why?

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### Did you know?

The **3-2-1 backup rule** is a strategy for ensuring data protection. It involves:

- 3 **Three copies of your data:** Keep one original copy and two backups.
- 2 **Two different types of storage media:** Store the copies on different types of media, such as an internal hard drive, an external hard drive, or cloud storage.
- 1 **One off-site backup:** Keep one of the backups in a different location to protect against local disasters or theft.

For every problem, there is a solution.

What sensible piece of advice can you give to the 5 people who are in trouble?



1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

If I were you, I would ...  
You should ...  
In my opinion, XXX could be a good idea.  
You must ....  
To avoid future problems, you can ....

Let's discuss this topic.



**Get in small groups. Discuss these data protection scenarios:**



- **Lost or stolen device:** A laptop containing customer data is stolen from an employee's car.
- **Unsecured email:** An employee accidentally sends an email containing sensitive information (like social security numbers) to the wrong recipient.
- **Unsecured Wi-Fi:** Someone uses public Wi-Fi without encryption and their login credentials for a website storing personal data are intercepted.

Each group shares its approach to handling the scenario, focusing on data protection strategies.

# 5 It's magnetic



What do you remember about *hardware* and *storage*?



What is the role of magnets in data storage?

**Define** the term **magnet** by taking bits from the three definitions provided.



- A magnet is a special object that attracts certain materials like iron or steel.
- A magnet is something that sticks to some metals and can pull them towards itself.
- A magnet is a thing that has a special power to make some objects stick to it without touching.

Let's revise the magnets' basic properties.



Bar magnets	Cylindrical magnets	Dumb-bell shaped magnets	Horseshoe magnets
The poles are located at the ends of the bar.	The poles are located at the two circular ends of the cylinder.	The poles are located at the two dumb-bell shaped ends.	The poles are located at the two free ends of the "U" shape.

**Give** examples of where you can find magnets in your everyday life.



**Read** the text about magnetic storage. 

Magnets play a crucial role in traditional computer storage, particularly in hard disk drives (HDDs). HDDs store data on spinning disks coated with magnetic material. As the disks spin, a read/write head moves across their surface, aligning tiny magnetic particles in different directions to represent binary data (0s and 1s). This process allows for long-term data storage, as the magnetic orientation remains stable even when the power is turned off, making HDDs a reliable form of non-volatile storage.

While solid-state drives (SSDs) have become more common, magnets are still essential in data centers and personal computers that rely on large amounts of storage. One of the key advantages of magnetic storage is its affordability and large capacity. However, magnetic storage is easier to damage from physical impact or strong magnetic fields, which can disrupt the stored data. Despite these vulnerabilities, HDDs continue to be widely used in various industries where cost-effective and high-capacity storage is needed.

**Surf the net** and **answer**.



What is the difference between magnetic and non-magnetic storage?



**Use** the information in the text and what you found on the web to **complete** the following chart.

<b>magnetic storage</b>		<b>Non-magnetic storage</b>	
<b>Advantages</b>	<b>Disadvantages</b>	<b>Advantages</b>	<b>Disadvantages</b>

Look at the basic parts of a hard disk drive. Label the parts with the correct term.



Spindle \_\_\_\_\_

Read/write head \_\_\_\_\_

Magnetic Platter \_\_\_\_\_

Actuator arm \_\_\_\_\_

Actuator \_\_\_\_\_

Circuit board \_\_\_\_\_



Magnets are used in various other components of computers beyond storage.

Investigate the use of magnets in these other components and jot down some notes. Share your findings with the class.



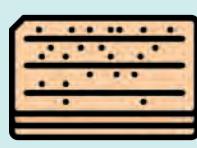
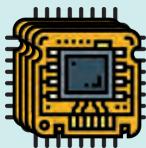
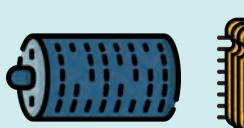
### SPEAKERS & MICROPHONES

### COOLING FANS

### OLDER SCREENS

### MAGNETIC SENSORS

How have storage devices evolved? **Complete** this timeline with information about storage devices that were created in those years and add two interesting facts of each one. There is one example.



## Evolution of Storage Devices

Punched cards

1725

- Holes punched at specific spots on the card represented data or instructions.
- People used machines to punch the holes and other machines to read them for calculations.

1932

1954

1971

1982

2000

2006

2020

# 6 Fire the laser

What is a laser?

The word laser is an acronym such as FBI, WI-FI, UFO, NASA, etc.

**Surf the net** and **find** what the word laser stands for.



# LASER

What do you use a laser for?



One of the uses of the laser is *optical storage*.

Have you ever heard of it?



**Get into groups of three** and **jot down ideas** about what you know about optical storage, how to use it in everyday life, and its possible advantages and disadvantages. **Name** a spokesperson to share your ideas.



1

2

3

Camila found a fact file about optical storage. **Read** the first part of the file and **complete** the subtitles with the terms below.

**Digital versatile disc (DVD)**

**cost**

**Reliance**

**Strength**

**Capacity**

**Durability**

**Compact disk (CD)**

**Blu-ray**



# OPTICAL STORAGE

**PART 1**

## WHAT IS OPTICAL STORAGE?

Optical storage is any storage type in which data is written and read with a laser.

## WHAT ARE COMMON EXAMPLES OF OPTICAL MEDIA?

- CDs use a red laser to read and write data, typically for audio or computer data storage.
- DVDs also use a red laser, but with higher storage capacity compared to CDs.
- Blu-ray discs use a blue-violet laser, which has a shorter wavelength than the red laser used in CDs and DVDs. This shorter wavelength allows for higher data storage capacity, making it suitable for high-definition video and larger data files.

## ADVANTAGES AND DISADVANTAGES OF OPTICAL STORAGE

- Optical discs are not vulnerable to data loss due to power failure like volatile memory, and they are not as subject to wear as non-volatile memory (NVM) such as HDDs and flash SSDs.
- Optical discs are also much sturdier than magnetic tape, which is the leading archival storage medium.
- Storage medium is inexpensive to manufacture, although costs can vary depending on the type of discs and how they are used.
- The biggest disadvantage of optical storage is disk capacity. The latest 12-cm Blu-ray discs top out at 128 GB, far below what is now possible with either HDDs or SSDs on a per-centimeter basis.
- The rise of internet streaming and Universal Serial Bus (USB) flash drives has also diminished the reliance on optical discs.

Read the second part of the fact file and complete it with the missing information. **Surf the net** and look for the dates when the events happened.



# OPTICAL STORAGE

PART 2

## HISTORY OF OPTICAL STORAGE

- James Russel invented the first optical storage device using light. This is not optical storage but many authors consider it the antecedent of it.
- The CD was developed incorporating concepts from Russell's early work.
- The CD (Compact Disk) received popular recognition. Two big companies created the first CD players using a laser to create pits on a reflective surface. Red lasers were used.
- The Digital Versatile Disc (DVD) was introduced by a group of companies. DVDs used red lasers like CDs but offered higher capacity, making them ideal for movies.
- Research discovered that blue lasers (rays) have shorter wavelength than red ones which could improve the quality of the product.
- The blue-ray disc was launched and it can store up to 100 GB of data.

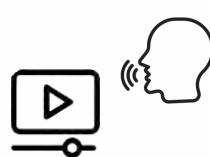
## WHAT ABOUT THE FUTURE?

The future of optical storage might not lie with plastic disks, but with quartz crystal, at least for archival or write-once data. Microsoft's Project Silica is actively working on a storage technology that uses ultrafast laser optics to store data in silica glass.

Some of the optical storage devices are obsolete nowadays.

Did you know that some of this garbage is sent to Africa?

**Type** *The Digital Dump: Exporting, Re-Use, and Abuse to Africa* in your browser and find videos about the issue. **Watch** part of the video and **share** your thoughts about it.



Some national companies focus on recycling e-waste.

Look for the [Werba SA](#) website in your browser and complete the chart.



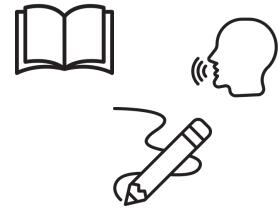
Name of the company	Werba S.A.
Addresses	
Electronic waste they work with	
Other kinds of waste they work with	
Countries they export the recycled metals to	
History	80 years



# 7 In a flash



**Read** the dialogue and **describe** what is going on.



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Find** an expression to see how Nayeli is feeling about the situation.



How would you feel if you were Nayeli? Have you ever felt bitten by the tech bug?

\_\_\_\_\_

\_\_\_\_\_

**Get into trios** and **think** of situations in which you have felt bitten by the tech bug.

I've felt bitten by the tech bug when... because...

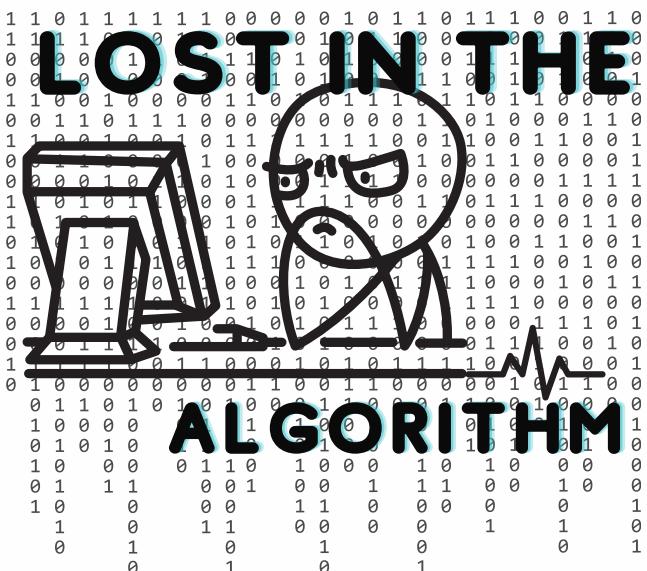
**Share** some of your ideas. 

One way to text that you are not feeling well is by sending stickers. Another way is to use idioms. These are three idioms you can use when you feel angry or frustrated when something goes wrong.

- "Bitten by the tech bug"
- "Error 404: Emotion not found"
- "Stuck in a buffering loop"

**Create** stickers or memes picturing these idioms.

There is one example "Lost in the algorithm."



Can you think of other tech-related idioms?



Nayeli lost her flash drive. Do you usually use flash drives?



Let's learn about flash drives.

**Read** the infographic and **match** the subtitles to the different characteristics of flash drives.



**universal Serial Bus (USB) Interface**

**High-storage capacity**

**Flash memory**

**Portable**



# FLASH DRIVES

Flash drives, also known as USB flash drives or thumb drives, are portable storage devices that use flash memory to store and retrieve data. They have become widely popular due to their compact size, high storage capacity, and versatility.

Here are the main characteristics of flash drives.

1



Flash drives are small and lightweight, making them highly portable. They can easily fit in a pocket or be carried on a keychain, allowing you to conveniently transport data between different devices.

2



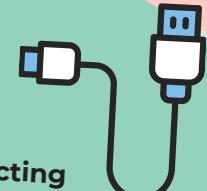
Flash drives come in various storage capacities, ranging from a few gigabytes (GB) to several terabytes (TB). The capacity you choose depends on your needs and the amount of data you intend to store.

3



Flash drives utilize flash memory, a non-volatile type of memory that retains data even when the power is removed. This allows for reliable and long-term storage of information.

4



Flash drives use the USB interface for connecting to devices such as computers, laptops, and other compatible devices. The USB connection allows for easy plug-and-play functionality without requiring additional power or complicated setup.



# 5

Flash drives have varying data transfer speeds, often indicated by their generation or USB version. The most common USB versions are USB 2.0, USB 3.0, USB 3.1, and USB 3.2, with each version offering faster transfer speeds compared to its predecessor.



# 6

Flash drives are compatible with a wide range of devices, including computers, laptops, gaming consoles, smart TVs, and car audio systems, as long as the device has a USB port.



# 7

Flash drives allow for repeated read and write operations. You can easily add, delete, or modify files on the drive as needed, making it a flexible storage solution.

# 8



Flash drives are generally durable and resistant to physical shocks. They do not have any moving parts, which reduces the risk of damage due to drops or vibrations. However, extreme temperatures or exposure to water can still affect their performance.



# 9

Some flash drives offer built-in security features such as password protection and encryption to protect your data from unauthorized access.

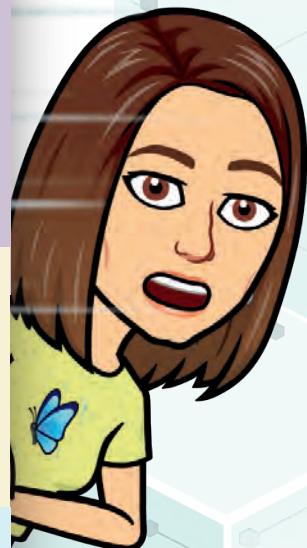


# 10

Flash drives are cost-effective storage solutions compared to other options like external hard drives or cloud storage subscriptions. They provide a relatively affordable and convenient way to carry and transfer data.

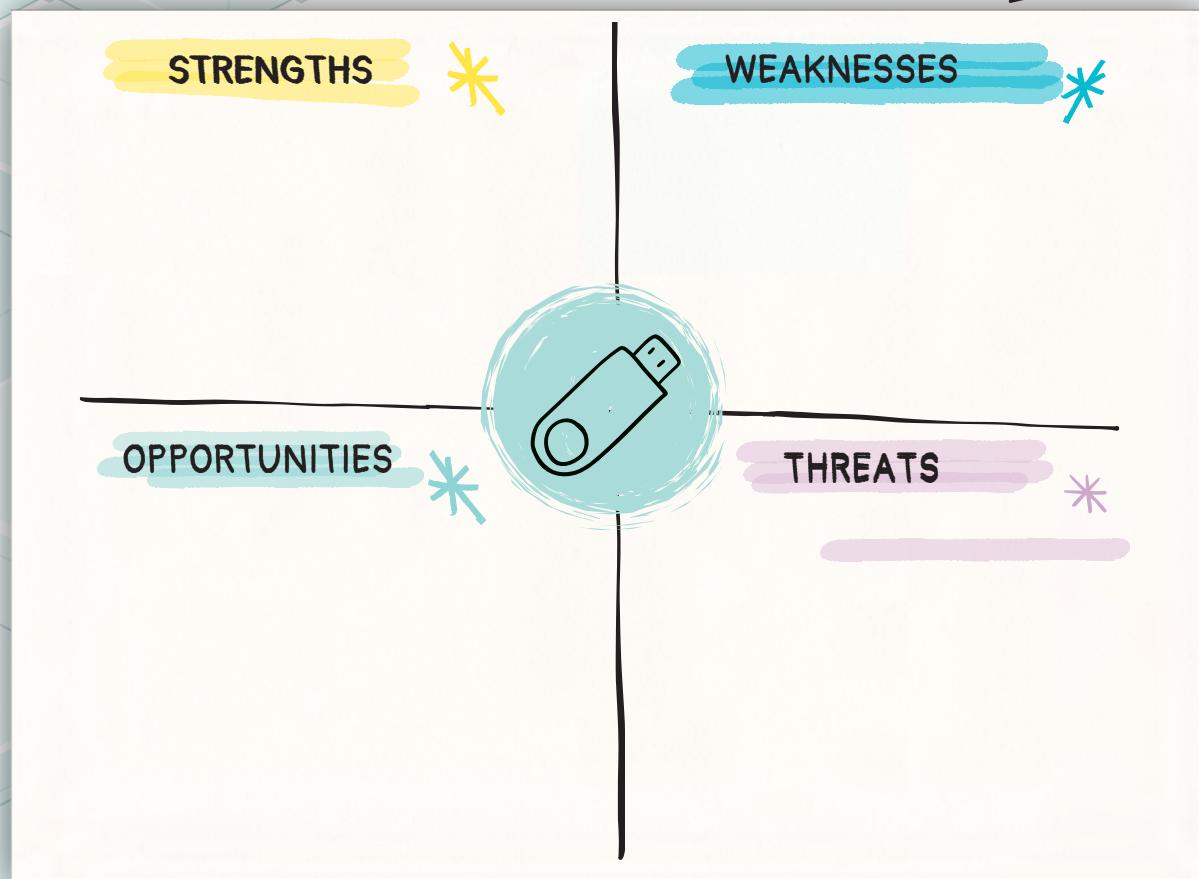


It's worth noting that technology advances rapidly, and new features or improvements may be introduced in flash drives over time.



**Read the second part of the infographic and think about appropriate subtitles. Then, share your ideas with a partner.**

Read the infographic again and **fill out** the SWOT chart.



What device did people use before the flash drive was invented?

What sensible advice can you give Nayeli to avoid losing her work again?

If I were you, I would...



## Project **The tech-savvy advisor**



- In this activity, you need to find ten ideas to advise people like Nayeli to avoid losing information.
- Create a poster to stick on your classroom wall so everybody is aware of possible ideas to store their information safely.



# 8 Big Data

What do you know about data protection in Uruguay?

In Uruguay, AGESIC is the Uruguayan agency in charge of digital development. Have you ever heard the name AGESIC?

**Read** the following text and **answer** the questions.



## Protection of personal data in Uruguay

The *Personal Data Protection Law N° 18.331* recognizes the right that we all have to control the use that others make of our data. This law seeks to protect the privacy of individuals whose records are kept in databases managed by public or private organizations.



### Personal Data

**Personal data** is any information that relates to an identified or identifiable living individual, like our names, surnames, emails, phone numbers, fingerprints, retinal models, voice recordings, photographs or images of a person, RUT numbers and DNA, among others.

Our personal data should not be obtained, collected or used illegally, with deception or through extortion. We all have the right to ask not to appear in telephone directories and not to receive unwanted advertising.

Moreover, those who work with our personal data have the duty to maintain professional secrecy and confidentiality. They also have the responsibility to adopt the appropriate security measures so that our information is not lost, stolen or used without authorization.

### Sensitive Personal Data

Among personal data, any information that reveals our racial or ethnic origin, political preferences, religious or moral convictions and any information regarding our health or sexual life is considered **Sensitive Personal Data**. These data have special protection by the law. No one is obligated to provide sensitive data, so for collection and treatment, it is necessary to have the owner's express written consent, except in extraordinary cases provided by law.

### The URCDP

The **Personal Data Regulatory and Control Unit (URCDP)** was created to guarantee the effective protection of our personal data. It has a registry of all Uruguay's personal data databases. It is also the institution before which we can report and ask questions regarding our personal data use and storage.

The URCDP is an autonomous entity of the *Agency for the Development of Electronic Government and the Information Society (AGESIC)*.

On the URCDP website (<https://www.gub.uy/unidad.reguladora.control.datos.personales/>), you will find all the information about your rights and the mechanisms you have to defend them.

- 1 What is the main purpose of the Personal Data Protection Law (Nº 18.331)?

---

- 2 According to the text, what are some examples of personal data?

---

- 3 Can someone be forced to provide sensitive personal data, like health information? Why or why not?

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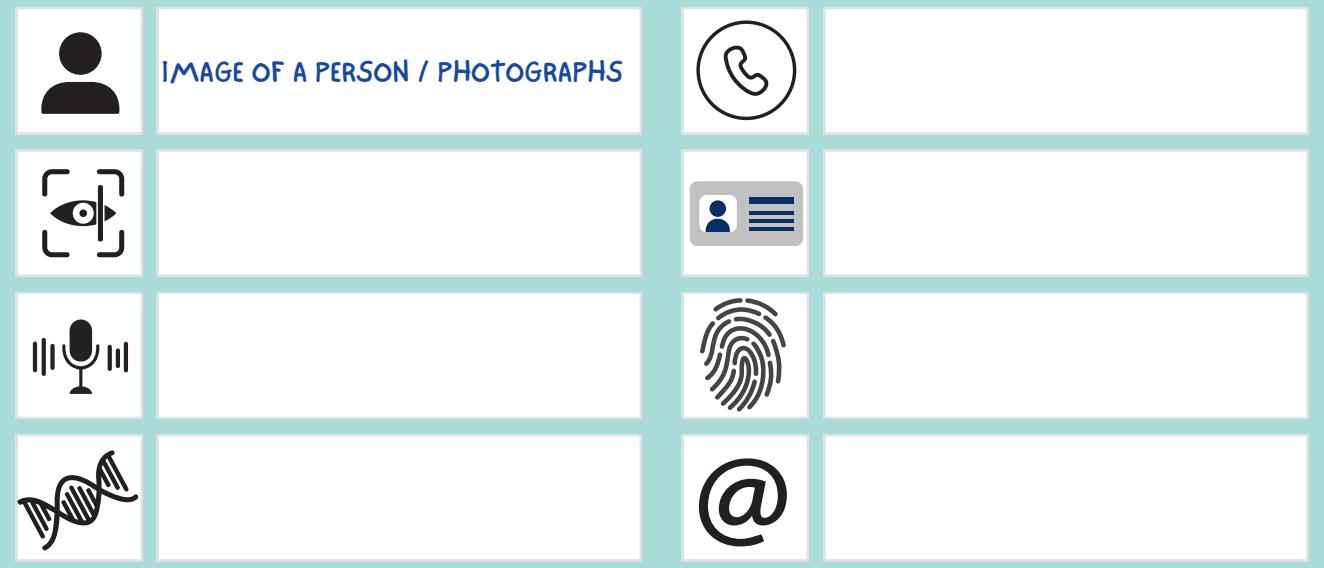
- 4 What is the role of the Personal Data Regulatory and Control Unit (URCDP)?

---

- 5 Where can you find more information about your rights regarding personal data in Uruguay?

---

**Match** the icons to the different types of data mentioned in the text.



**Read** the text again and **match** the ideas to make correct statements.



1. If you want to know your rights over your personal data, ...	a. ... you don't have to reveal them. It's protected by law.
2. If you are asked your personal data in a public or private institution, ...	b. ... you should visit the URCDP website.
3. If you are asked about your political preferences, ...	c. ... you should read Law Nº 18.331.
4. If you want to ask any questions about your personal data, ...	d. ... you can ask what the purpose of the use of the data is.
5. If you want more information about your rights and how to act, ...	e. ... you should contact the URCDP.

Read the infographic and **spot** at least 6 mistakes in the AGESIC Infographic.  
Underline the evidence in the text.



# PROTECTION OF DIGITAL DATA IN MONTEVIDEO

## LAW 18.831

the law that  
protects  
your data  
storage

**agesic**  
DESARROLLANDO  
EL URUGUAY DIGITAL



## SENSITIVE DATA

name, surname, email,  
phone number,  
photographs, fingerprints,  
retinal model, voice,  
image of a person,  
RUT and DNA

URDCP

## PERSONAL DATA

racial or ethnic origin,  
political preferences,  
religious or moral  
convictions and any  
information regarding  
our health or  
sexual life



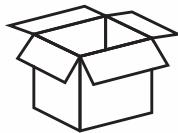
Here you have an empty template for you to **rewrite** the infographic.



**agesic**  
DESARROLLANDO  
EL URUGUAY DIGITAL



**Think outside the box!**



What should you do in the following situations?

**1** You have a photo with a group of friends from your last birthday party and you want to post it on a social media network.

- *If you want to post a photo of your friends on a social media network, you should ask them for their consent.*

**2** You have to set a password for your bank account and you usually use personal information like your family name, date of birth or hometown.

- *If you have to set a password for your bank account, you should/shouldn't*

---

**3** You receive a message from someone who says he/she is your friend, but you are suspicious about the message.

- *If you \_\_\_\_\_, you should/shouldn't ... \_\_\_\_\_.*

**4** You receive a message or email saying that you won the lottery or other lavish prizes.

- *If you \_\_\_\_\_, you should/shouldn't ... \_\_\_\_\_.*

**5** You receive an invitation from a person you don't know on a social network site.

- *If you \_\_\_\_\_, you should/shouldn't ... \_\_\_\_\_.*



# 9 The cloud

## What do you know about cloud storage?



**Cloud storage is a service model in which data is transmitted and stored on remote storage systems, where it is maintained, managed, backed up, and made available to users over a network, typically, the internet.**

**Get in pairs** and **discuss** the benefits of cloud storage, such as accessibility, scalability, and cost-effectiveness. **Take notes.**



Diego and Camila would like to learn about the drawbacks of cloud storage.



**Read** the list of disadvantages and develop each idea.

**1** **security risks**

**2** **dependence on internet connection**

**3** **privacy and data ownership costs**

**4** **data transfer speeds**

**5** **data accessibility and availability**

**6** **compliance and legal issues**

**7** **vendor lock-in**



OpenStack is a cloud computing platform that allows users to create and manage their private cloud.

**Get in pairs** again and **demonstrate** how to create an instance in OpenStack Horizon using the compute service, Nova.

**Follow** the instructions to create a private network and router in OpenStack Horizon.

**Get in pairs** and **answer**.



- What is the importance of creating a private network and router to connect the private network to the cloud's public network?
- How do you create backups and snapshots of volume data in Private Clouds?



### Did you know?



In **OpenStack**, an instance is a virtual machine that runs in the cloud. Instances can be launched from images uploaded to the Image service, from images copied to a persistent volume, or from snapshots of instances.

# 10 The best place to keep it safe

Diving into the world of storage in information technology may help us discover the best places to keep our digital treasures.



Let's refresh our memory with some keywords.  
Look at the pictures and **match** them with the right words.



Hard Drive

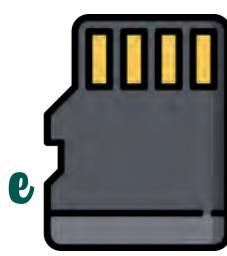
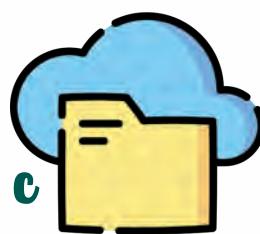
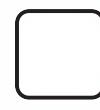


SD Card

USB Drive



Cloud Storage



Read this short story to learn about different storage options.



# The Digital Library Adventure

Once upon a time in the vibrant town of Techville, there lived two friends, Pía and Marcos. They loved exploring the fascinating world of technology. One sunny afternoon, while playing in the park, they stumbled upon an old book that seemed to have a magical glow.

Curiosity sparked, they opened the book, and suddenly, they found themselves transported to the Digital Library, a magical realm filled with bits and bytes. The Digital Librarian, a wise old figure made of pixels, greeted them.

*"Welcome, young explorers! In this digital realm, you must understand the art of storage to navigate our vast collection,"* said the Digital Librarian.

Pía and Marcos saw various doors leading to different storage areas.

**THE DOOR OF THE HARD DRIVE** The Librarian explained, *"Imagine a hard drive as a spacious room where you store all your favorite toys. It's like a personal space on your computer."*

**THE DOOR OF THE CLOUD** Pointing to a cloud-shaped door, the Librarian continued, *"The Cloud is like a magical sky where you can keep your toys safe. Access them from anywhere with an internet wand!"*

**THE DOOR OF THE USB KINGDOM** They walked through a door shaped like a USB drive. *"A USB drive is like a magic keychain. You can carry it with you and share your toys with friends by plugging it into different computers,"* explained the Librarian.

**THE DOOR OF THE SD CARD FOREST** In the corner, there was a door surrounded by trees. *"An SD card is like a tiny garden where you plant your favorite flowers. It's small but can hold wonderful things,"* said the Librarian.

As Pía and Marcos explored each storage area, they realized the importance of choosing the right place for different digital treasures. Some toys were best kept in the spacious Hard Drive room, while others thrived in the Cloud's boundless sky.

With their newfound knowledge, Pía and Marcos bid farewell to the Digital Library, returning to Techville. They understood that just like their magical adventure, choosing the right storage option was crucial in the digital realm.

And so, with a wave from the Digital Librarian, Pía and Marcos continued their tech exploration, equipped with the wisdom of storage options.



**Answer** the questions.



**1** What did Pía and Marcos find while playing in the park, and how did it lead them to a magical adventure? \_\_\_\_\_

**2** Describe the Digital Library. What were the different doors, and what did each door represent in terms of storage options? \_\_\_\_\_

**3** Explain the analogy the Digital Librarian used to describe the Hard Drive. How is it similar to a real-world concept? \_\_\_\_\_

**4** In the story, what does the Cloud represent, and how did the Librarian describe its function in storing digital items? \_\_\_\_\_

**5** Compare the USB drive and the SD card in the story. How did the Librarian explain their functions, and what makes them different from each other? \_\_\_\_\_

**Get into small groups.** Read the different storage solutions on the Post-it note and sort them into the right categories.



Think about where each type is best used.

### Categories

**Portable Storage**

**Large Capacity Storage**

**Cloud Storage**

**Optical media**

- Hard Drive Card
- USB Drive Card
- Cloud Storage Card
- SD Card Card
- DVD/CD Card

**Read** these scenarios in which storing information is vital.



What would you advise each person?



### Family Vacation Photos

1

Diego has just returned from a fantastic family vacation and he captured hundreds of photos of beautiful landscapes, memorable moments, and family gatherings. What are the best storage solution for keeping these precious memories safe and easily accessible?



Diego has just returned from a fantastic family vacation and he captured hundreds of photos of beautiful landscapes, memorable moments, and family gatherings. What are the best storage solution for keeping these precious memories safe and easily accessible?

### Student Project Presentation

3



Inés is working on a group project that involves creating a multimedia presentation with slides, images, and videos. What is the most practical storage solution to collaborate with their group members and ensure easy access to the project materials?



Like



Comment



Share

2



### Important Business Proposal



Camila's parents have worked hard on a crucial business proposal that could potentially secure a big contract for their company. This document contains sensitive information and is vital for the success of their business. What is the most secure and efficient storage option for this important business document?

4



### Digital Art Portfolio



...

Nico's aunt is an aspiring digital artist. She has a portfolio of her artwork, including high-resolution images and video animations. What storage option will allow her to showcase her work professionally, share it with potential clients or collaborators, and maintain the quality of her artistic creations?



## Project



### Information Storage

There are still some people who don't know how to store information properly. **Consider** storage tools like *Google Drive* and *Dropbox*.

**Create** a Canva presentation including the steps to use these two tools.



In this unit, I learned that...

Something I need to revise is...

my favorite part of this unit was...

I felt...



# UNIT 5

## Setting up a gaming PC



# 1 Hardware gaming

How familiar are you with gaming systems and their hardware components?

Tick  your answer in this scale.

0	Not at all familiar	<input type="checkbox"/>	I have no knowledge or experience with this topic.
1	Slightly familiar	<input type="checkbox"/>	I have heard of it, but I don't know much about it.
2	Somewhat familiar	<input type="checkbox"/>	I have some basic understanding or knowledge about it.
3	Moderately familiar	<input type="checkbox"/>	I have a fair amount of knowledge or experience with it.
4	Very familiar	<input type="checkbox"/>	I have a strong understanding and considerable experience with it.
5	Extremely familiar	<input type="checkbox"/>	I am highly knowledgeable and experienced in this area, and it's a significant part of my expertise.



Look at these images and name them.



4



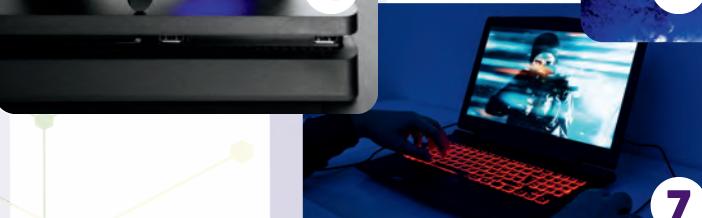
7



5



8



3



6

**Get in pairs** and **discuss** these questions.

- How important is hardware in gaming?
- How does it affect the gaming experience?

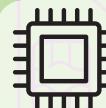


**Read** the infographic about the main hardware components used in gaming systems. **Find** information about the last two and **take notes**.



## Hardware components

The main hardware components used in gaming systems are:



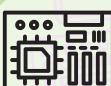
### CPU (Central Processing Unit)

Handles the processing of data and instructions for the game.



### RAM (Random Access Memory)

Temporarily stores data that the CPU needs to access quickly.



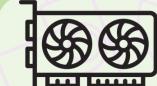
### Motherboard

Connects all the components and allows them to communicate with each other.



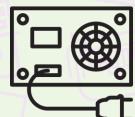
### Storage (HDD/SSD)

Stores the game files, save data, and operating system.

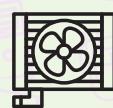


### Graphics Card

Responsible for rendering images and videos on the screen.



### Power Supply Unit (PSU)



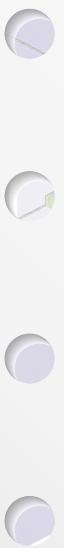
### Cooling system

**Get in pairs** and **discuss**.

- What do all these components have in common?
- Are there any other hardware components important for gaming? What about input/output peripherals devices?



**Work in pairs.** Each pair should choose one gaming hardware component and **write** a short paragraph (3-5 sentences) describing its importance and role in a gaming system.



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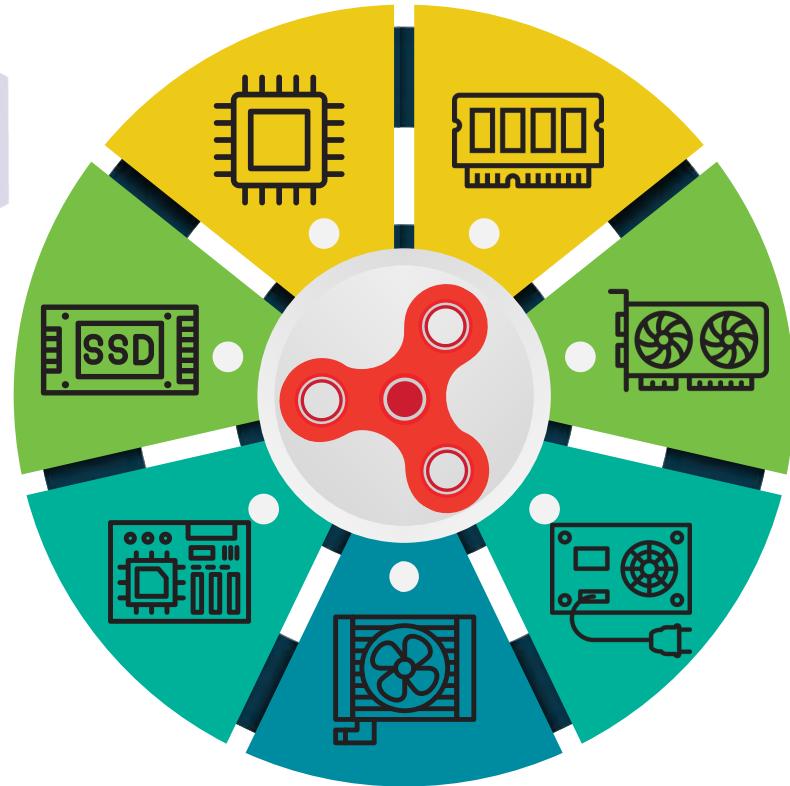
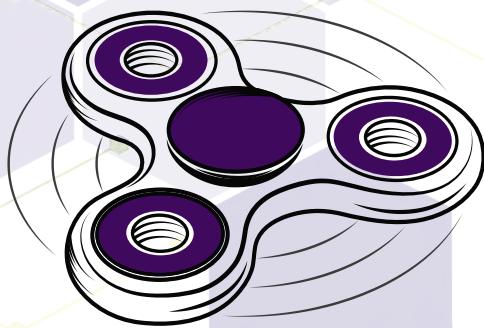
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Be ready to **share** your paragraphs with the class.



### **Fidget Spinner Game**

- **Cut a small arrow** from paper or craft and stick it onto the fidget spinner as your pointer.
- **Place the fidget spinner** in the middle of the vocabulary circle.
- **Spin it** and say what you remember about that component.



# 2 How much memory do you need?



Why is RAM important in gaming computers?

Nayeli and her classmates are discussing the significance of RAM Memory in gaming PCs.

**Help** her explain the role of RAM in gaming and its impact on overall system performance.

**Look** for information about the following aspects that demonstrate the *importance of RAM* and **jot down** some notes for each one.



## Faster data access

temporarily stores game data needed by CPU and GPU. reduces the need to use storage drives

## multitasking

## Smooth gameplay

## Loading expansive game environments

Nayeli and Nico have to create an overview of different memory capacities commonly found in gaming PCs (e.g., 8GB, 16GB, 32GB, etc.).

**Help** them complete the task.

What are the general memory requirements for running modern games and how do they vary based on factors such as game complexity and resolution?



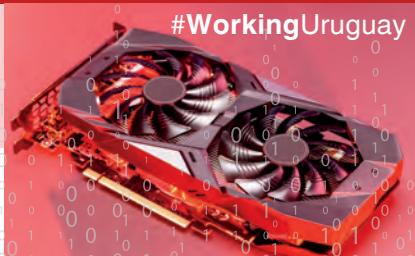
While researching memory requirements, Nayeli and Nico found out about **VRAM memory**. Do you know what it is? **Read** the article.



# Gaming tech:

# ***The Importance of VRAM in Gaming PCs***

If you are into gaming or work with videos, animations, or 3D designs, you need a strong computer. These computers, called gaming PCs or workstations, often have special parts that make them faster and better at handling heavy tasks. One important part is the graphics card, and it includes something called VRAM (Video Random Access Memory).



## ***Why do Gaming PCs and workstations have graphics cards?***

Gaming PCs and workstations come with dedicated graphics cards. These cards help the computer manage all the visual information in games, videos, and designs. The graphics card's VRAM is a special type of memory that stores the images, textures, and video frames your computer needs. VRAM is located directly on the graphics card, close to the GPU (Graphics Processing Unit), so it can quickly access this data and make sure your games or programs run smoothly.

## ***What makes VRAM different from system RAM?***

Unlike system RAM, which handles many different tasks in your computer, VRAM focuses only on visual data. This means it can't be used for other things but is very important for fast and clear graphics. When you're playing a game or working on a 3D design, VRAM stores textures, models, and other graphical data. This helps the GPU work faster because it doesn't need to get the data from the slower system RAM. More VRAM also means the graphics card can handle higher resolutions and better-quality images without slowing down or causing lag.

## Why is VRAM important for gaming?

For gamers, VRAM is crucial because it helps your graphics card handle all the visual details in games. When a game is running, VRAM stores textures, models, and other graphical data so the GPU can quickly access and process them. This means the game runs smoothly, with clear graphics and high frame rates.

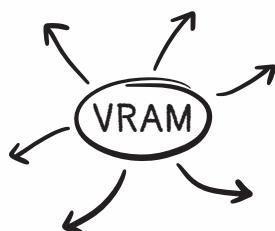


If you have more VRAM, your graphics card can handle higher resolutions and more detailed textures without slowing down or causing lag. Without enough VRAM, you might experience delays, stuttering, or lower quality visuals during gameplay.

When choosing a gaming PC, pay attention to the amount of VRAM in the graphics card, as it directly affects how well your games will look and perform. Investing in a good graphics card with ample VRAM can make a big difference in enjoying your games without interruptions or lag.

**Get in pairs** and **create** a mind map with the most important information about *VRAM memory*.

Take into account: definition, location, function, importance, etc.



## Did you know?

RAM capacities come in multiples of eight (e.g., 8GB, 16GB, 32GB) because computers use a binary system, where everything is represented in powers of two ( $n^2$ ). It's more efficient for the system's architecture, as data can be evenly split across the memory channels.

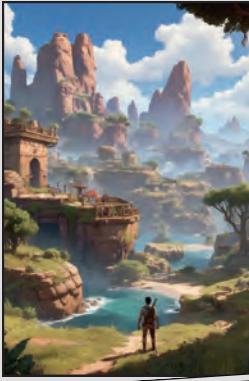
# Game time!



- Get into groups of three. Each group receives a different role-playing card with a gaming function.
- Discuss the specific gaming function on the card and decide on the most appropriate memory requirements (RAM and VRAM). Consider the gaming scenarios, resolution, multitasking requirements, and any potential future needs.
- Present your gaming function and explain your chosen memory requirements to the class. Justify your decisions.
- Complete the RAM and VRAM requirements in each installation window after listening to all the groups.

**1**

**Epic World Explorer**



**Gaming function**  
Open-world exploration game with vast landscapes, detailed environments, and complex interactions.

**Memory requirements**  
----- GB RAM  
----- GB VRAM for smooth navigation and rendering of intricate game details.

**2**

**Battlefield Centurion**



**Gaming function**  
Multiplayer online battle game set in Roman times, with realistic graphics, large-scale battles, and strategic planning.

**Memory requirements**  
----- GB RAM  
----- GB VRAM to support seamless communication with other players and process intense graphical elements.

**3**

**Speed Racer**



**Gaming function**  
High-speed racing game with realistic physics, dynamic environments, and intense competition.

**Memory requirements**  
----- GB RAM  
----- GB VRAM for smooth rendering of high-speed graphics and responsive controls.

**4**

**Stealthy Infiltrator**



**Gaming function**  
Stealth-based action game with intricate level designs, complex AI, and strategic decision-making.

**Memory requirements**  
----- GB RAM  
----- GB VRAM for handling the complexity of AI algorithms and rendering detailed environments.

**5**

**Fantasy Quest Conqueror**

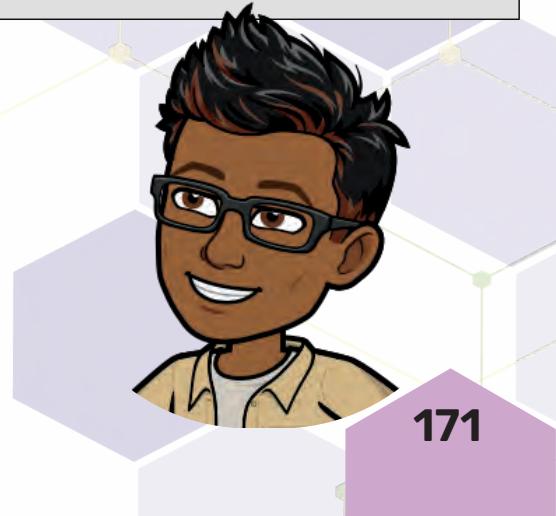


**Gaming function**  
Role-playing game set in a fantasy world with numerous characters, quests, and magical elements.

**Memory requirements**  
----- GB RAM  
----- GB VRAM for managing a vast database of characters, quests, and handling magical effects.

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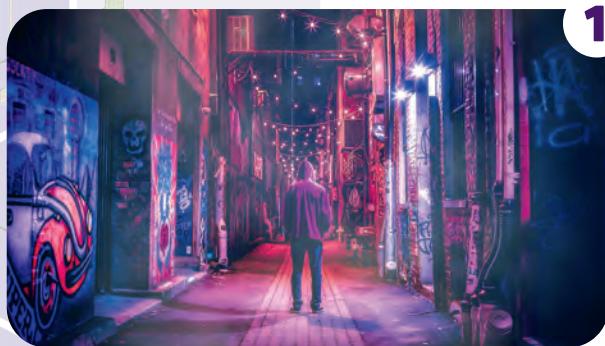
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# 3 Top trends

Do you have any experience with gaming or gaming PCs? Do you know any recent trends in this field?

Look at these images. What do you think they have to do with video games?



1



2

Wikimedia Commons



3

<https://pixabay.com/photos/cyberpunk-neon-night-urban-street-5135622/>

One of Nayeli's teachers uploaded a podcast about gaming PCs and the Gaming Industry.

Listen to Nayeli's teacher and **answer** whether these statements are *true* or *false*.



- 1 Gaming computers are not popular among teenagers. \_\_\_\_\_
- 2 Ray tracing is a technology that imitates how light behaves. \_\_\_\_\_
- 3 High refresh rate monitors can make gameplay smoother and more responsive. \_\_\_\_\_
- 4 Small form factor (SFF) PCs are large and take up a lot of space. \_\_\_\_\_
- 5 RGB lighting allows gamers to customize the colors of their setup. \_\_\_\_\_

**Listen** again and **choose** the correct option to complete each statement.



1 Ray tracing is a technology that simulates ...

- a- sound.
- b- light.
- c- movement.

2 High refresh rate monitors make gameplay ...

- a- slower.
- b- smoother.
- c- blurry.

3 Small form factor (SFF) PCs are ideal for gamers who ...

- a- have a lot of desk space.
- b- want powerful computers.
- c- prefer large computers.

4 RGB lighting allows gamers to customize their setup with ...

- a- thousands of colors.
- b- millions of colors.
- c- only a few colors.

5 According to the script, the future of gaming computers may include ...

- a- slower processors.
- b- virtual reality experiences.
- c- limited customization options.

**Listen** to the audio one more time and **match** each trend with its corresponding description.



### Trends

- 1- Amazing Graphics
- 2- Seeing Better, Faster
- 3- Small But Strong
- 4- Make Your Gaming Space Yours

### Descriptions

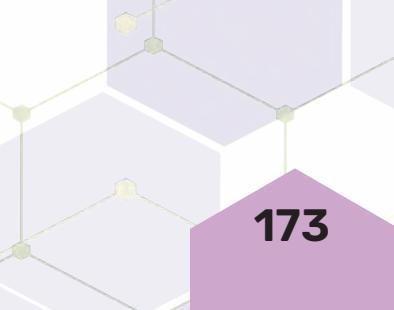
- a- Technology that simulates how light behaves in games.
- b- Utilizing high refresh rate monitors to improve gameplay quality.
- c- Packing powerful processors into compact PC cases.
- d- Customizing gaming setups with RGB lighting.

1

2

3

4



**Get in pairs** and **discuss** these questions. **Take notes** and then **share** your ideas with the rest of the class.



- 1-** How do you think ray tracing makes games look cooler? Can you think of a game that uses ray tracing?
- 2-** How do games look different when you use a special kind of monitor?
- 3-** Why are small gaming computers better than big ones? Can you think of any reasons why a big computer might be better sometimes?
- 4-** How can colorful lights in your gaming setup make it feel more like your own space? Do you think it changes how you play?
- 5-** What new things would you like to see on gaming computers in the future?

## Project



### Game on

**Sketch** a scene of your favorite game and **present** it to the class. **Take notes** while you listen to others. After all the presentations, **discuss** and **define** which game has the best design.



# 4 Best gaming PCs

Inés and Simon are discussing the necessary skills to build a PC.

**Read** the article with the list of skills required for setting up a gaming PC.



## 11 needed skills for BUILDING A GAMING PC

**1 Solving problems** Building a gaming PC can be tricky. You might have to solve problems like parts not fitting together or cables being messy.

**2 Paying attention** You have to be careful when handling computer parts. Even a small mistake can cause problems.

**3 Being patient** You need to put parts together, connect cables and fix problems. It is important to be patient, especially if you are doing it for the first time.

**4 Knowing about computers** You do not need to be an expert, but it helps to know about computer parts like the CPU, GPU, RAM and storage.

**5 Using your hands** Building a gaming PC involves working with small parts and screws. It's good to be good with your hands.

**6 Being organized** Keeping parts and screws organized while building can help you avoid losing them.

**7 Wanting to learn** Being curious and wanting to learn about computers can make building a PC more interesting.

**8 Researching skills** You should be ready to find information about parts and how they work.

**9 Being safe** It is important to know how to handle computer parts safely to avoid damaging them.

**10 Not giving up** Sometimes you might have trouble finding parts or fixing problems. Being patient and resourceful can help you find solutions.

**11 Managing time** Make sure you have enough time to build your PC without rushing. It's better to do it in one go.

Remember, building a gaming PC is a skill you can learn. Even if you are not good at it at first, you can get better with practice. There are lots of online resources and tutorials to help you.

**Get in pairs** and **underline** the three most important skills and explain why they are essential for successful PC building.



What advice would you give to someone who wants to build a PC?



Inés and Simon found a leaflet with some tips. **Read** the tips below and **compare** your ideas.



# Building a PC



## Tips to Becoming a Confident PC Builder

### Familiarize yourself with components

#### Resources

- Online articles and tutorials.
- YouTube videos on PC components and their functions.

#### Advice

- Start by learning about essential components: CPU, GPU, RAM, motherboard, storage and power supply.

Building a PC is both an art and a science. Equip yourself with knowledge, practice a lot, and stay connected with the community. Soon, you'll be assembling PCs with confidence and enjoying the benefits of a customized machine tailored to your needs.

### Get to know the tools

#### Resources

- Video tutorials on common PC building tools.
- Online guides on tool usage.

#### Advice

- Learn how to use basic tools like screwdrivers, pliers, and anti-static wrist straps.

### Practice Disassembly and Assembly computers

#### Resources

- Old or unused PCs for hands-on practice.
- Step-by-step assembly guides.

#### Advice

- Disassemble and reassemble a PC multiple times to build confidence and familiarity with the process.

### Follow technology updates

#### Resources

- Tech news websites.
- YouTube channels dedicated to hardware reviews.

#### Advice

- Stay informed about the latest hardware releases, updates, and industry trends.



**Get into small groups** and **discuss** these situations. What advice would you give to each person?



Situation 1: Adriana has decided to build her own PC, but she's unsure about which tools she'll need and how to use them properly.

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Situation 2: Franco has some experience building PCs but wants to know more about the compatibility of certain components he wants to use in his new build.

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Situation 3: Bárbara is on a tight budget and wants to build a gaming PC without overspending. She's concerned about getting the best value for her money.

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Situation 4: Matías wants to build his own PC, but he's worried about making mistakes during the assembly process.

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I think he/she should / shouldn't .....  
He/ she can/may/ .....  
Something he/she could do .....  
I agree/disagree .....  
A good idea is to .....

Pictures generated with DALL-E.

# 5 Where to find the right equipment

*Building a gaming PC is vital to achieve optimal gaming performance.*

Do you have any prior experience with building or setting up a gaming PC?  
What equipment do you think is necessary?



Here you have a list of essential components to build a gaming PC.  
**Complete** the terminology.



- 1 C \_\_\_\_\_ P \_\_\_\_\_ U \_\_\_\_\_
- 2 G \_\_\_\_\_ P \_\_\_\_\_ U \_\_\_\_\_
- 3 R \_\_\_\_\_ A \_\_\_\_\_ M \_\_\_\_\_
- 4 P \_\_\_\_\_ S \_\_\_\_\_ U \_\_\_\_\_
- 5 L \_\_\_\_\_ C \_\_\_\_\_ S \_\_\_\_\_

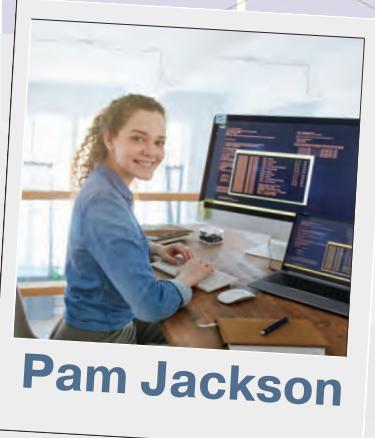


**Read** an interview with a game developer and **complete** it with these questions.



- a-** What part of the computer is responsible for making the graphics look good in games?
- b-** Why is it important to have a good power supply unit for gaming PCs?
- c-** How much RAM is best for a gaming PC?
- d-** What do you need to build a gaming PC?
- e-** What are some good things about using a liquid cooling system on a gaming PC?

**Presenter:** Hello, everyone. Today, we're going to talk about the important parts you need to build a gaming computer and why it's important to choose them carefully. Here with us, Pam Jackson, game developer. **1** \_\_\_\_\_?



**Pam Jackson**

**Pam:** To build a gaming PC, you need a few important parts. First, you need a Central Processing Unit (CPU). This is like the brain of the computer and handles all the calculations. For gaming, you need a strong CPU to handle the game's actions and decisions.

Next, you need a Graphics Processing Unit (GPU). This part is in charge of making the game look attractive. A good GPU is important for showing graphics clearly and making sure the game runs smoothly, especially if it's a game with lots of detailed graphics.

You also need Random Access Memory (RAM). This helps the computer work quickly by storing temporary information. For gaming, it's best to have at least 16GB of RAM to make sure everything runs smoothly and the game doesn't slow down.

**Presenter:** **2** \_\_\_\_\_?

**Pam:** The part of the computer responsible for making the graphics look good in games is the Graphics Processing Unit (GPU), located on the computer's graphics card. This part is made to handle all the complicated math needed to show 3D graphics and special effects in games. Also, graphic cards come with dedicated VRAM, which is a special type of memory that stores the games' images, textures, and video frames.

**Presenter:** **3** \_\_\_\_\_?

**Pam:** It's important to have a good power supply unit (PSU) for gaming PCs for a few reasons. Gaming PCs need a lot of power because they have strong parts like CPUs and GPUs. A good PSU makes sure the computer gets the right amount of power without any problems. It also helps protect the computer from damage if there are any power issues.

Also, good PSUs are designed to use power efficiently, which helps save energy and keep the computer from getting too hot. This is important because too much heat can make the computer slow down or even break.

Presenter: 4 ?

**Pam:** Using a liquid cooling system in a gaming PC has a few advantages. Liquid cooling can keep the computer cooler than regular fans, which helps the computer work better during long gaming sessions. It's also quieter than fans, so it won't make as much noise while you're playing games. And, it can help make the computer parts last longer because they stay cooler and don't wear out as quickly.

Presenter: 5 ?

**Pam:** For a normal gaming PC, it's best to have at least 16GB of RAM. With 16GB, the computer should be able to run most games smoothly and do other things at the same time without slowing down. Some games might be okay with less RAM, but 16GB is a good amount to make sure everything works well, especially for future games that might need more memory.

**Presenter:** Thanks Pam! So, building a gaming PC with the right parts is really important for having a good gaming experience. A strong CPU, GPU, enough RAM, a good power supply unit, and a cooling system are all things you need to make sure your gaming PC works well. Remember these things, and you'll be ready to build a gaming PC that's perfect for you. Thanks for listening, and happy gaming!

1

2

3

4

5

**Listen** to the interview and **check** your answers.



**Get in pairs** and **discuss** these questions.



1 What are the main components needed to build a gaming PC, and why are they important?

2 Can you explain the role of the Graphics Processing Unit (GPU) in a gaming PC? Why is it essential for gaming?

3 Why do gaming PCs need a good Power Supply Unit (PSU)? What problems can appear if the PSU is not adequate?

4 What are the advantages of using a Liquid Cooling System (LCS) over traditional fans in a gaming PC?

5 How much RAM is recommended for a gaming PC, and why is it important for gaming performance?

Let's see how much you know about women in the gaming industry.

- Surf the internet and find information to have a solid understanding of this topic.
- Get into trios and share the info with the rest of your peers.
- Discuss the importance of gender equality in this field.



**Take the quiz** and **check** how much you know about "Women in Game Development".



**QUIZ!**

**1** What percentage of game developers worldwide are women?

A. 10%  C. 30%  
 B. 20%  D. 50%

**2** Women have been involved in game development since the early days of the industry.

A. TRUE  B. FALSE

**3** Which of the following is NOT a reason why women are underrepresented in game development?

A. Lack of interest from women  C. Stereotypes about women's abilities in technology fields  
 B. Gender discrimination  D. Limited access to educational opportunities

**4** Who is considered the first female game designer?

A. Jane Jensen  C. Brenda Romero  
 B. Roberta Williams  D. Carol Shaw

**5** Women are more likely to work in art and design roles compared to programming roles in the game industry.

A. TRUE  B. FALSE

**6** Which organization aims to support women in the game development industry through advocacy and community building?

A. Women in Games International (WIGI)  C. Game Developers Conference (GDC)  
 B. International Game Developers Association (IGDA)  D. Entertainment Software Association (ESA)



(Solutions at the end of the unit.)



## 7 What is the significance of the #1reasonstobe panel at the Game Developers Conference (GDC)?

- A. It encourages women to stay away from the gaming industry.
- B. It focuses on promoting male dominance in the game development field.
- C. It aims to highlight the reasons why women should not pursue careers in game development.
- D. It provides a platform for women to share their experiences and insights in the industry.

## 8 What can game development companies do to promote gender diversity in their teams?

- A. Implementing inclusive hiring practices
- B. Offering mentorship programs for women
- C. Providing equal opportunities for career advancement
- D. All of the above

## 9 Despite challenges, women have made significant contributions to the gaming industry through history.

- A. TRUE
- B. FALSE

## 10 What are some benefits of having gender diversity in game development teams?

- A. Encourages creativity and innovation
- B. Reflects the diverse perspectives of players
- C. Helps create more inclusive and relatable game experiences
- D. All of the above

## Score

### Women in Game Development



**0 - 3 correct answers:** It seems like you may need to learn more about women's contributions to game development and the importance of gender diversity in the industry.

**4 - 7 correct answers:** You have some knowledge about women in game development, but there's room for improvement.

**8 - 10 correct answers:** Congratulations! You have a good understanding of women's role in game development and the significance of gender diversity in the industry.



# 6 Speed it up!

Nico and Inés are playing games on the PC. Inés has won the game, Nico is clearly upset because his computer is too slow.

What is the importance of a fast gaming PC for a better gaming experience?

Are you familiar with the term "*speeding up a gaming PC*"? Have you ever tried to do it yourself?



How much do you know about this topic? **Match** words and definitions.

- 1 software
- 2 optimize
- 3 clean
- 4 hardware
- 5 performance
- 6 upgrade



- a-** To improve or enhance a component of a computer, such as adding more RAM or installing a better graphics card.
- b-** Programs and applications that run on a computer, including the operating system and applications like games and word processors.
- c-** How well a computer or component operates, including its speed and efficiency.
- d-** To make something as effective, efficient, or useful as possible.
- e-** The physical components of a computer, including the CPU, RAM, graphics card, and hard drive.
- f-** To remove dirt, dust, or unwanted files from something to keep it in good condition.

1

2

3

4

5

6

**Complete** the sentences with the words from the box.



**optimize - performance - upgrade - cleaning - hardware - software**

Regularly, 1 \_\_\_\_\_ the CPU fan prevents overheating. The graphics card is a crucial piece of 2 \_\_\_\_\_ for gaming. You can 3 \_\_\_\_\_ your gaming PC by adjusting in-game settings. Microsoft Office is an example of productivity 4 \_\_\_\_\_. He decided to 5 \_\_\_\_\_ his graphics card for better gaming 6 \_\_\_\_\_.

Nico wants to learn to speed up his PC. **Read** the information he found online and **answer** these questions.



- 1- Why is it important to clean the inside parts of your computer regularly?
- 2- How can you make more space on your computer?
- 3- What are some suggestions for making games run smoother if they are slow?
- 4- Name three hardware upgrades that can improve your gaming PC's performance.
- 5- Why is it recommended to check the temperature of your computer parts, and how can you do it?

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**Get in pairs** and **choose** the best tips to make your gaming PC faster.





## HOW TO MAKE YOUR GAMING PC FASTER

Having a faster gaming PC can make playing games even more fun! Here are some easy steps you can follow to make your gaming PC faster for better gameplay.

### CLEAN YOUR PC

**Keep your PC Clean** - Regularly clean the parts inside your computer, like the fan, graphics card and motherboard. Dust can make your computer hot and slow.

**Clean your Programs** - To free up space on your computer, delete unnecessary programs and remove temporary files. A program like CCleaner can help.

### UPDATE YOUR SOFTWARE & GRAPHICS

**Update your Computer** - Make sure your computer has the newest updates. This helps it work better and stay safe.

**Update your Graphics** - Ensure your graphics card has the latest updates from the company that made it, like NVIDIA, AMD or Intel.

### MAKE GAMES LOOK BETTER, BUT FASTER

**Change Game Settings** - When games are slow, try lowering the graphics settings in the game. You can also change the resolution or turn off some special effects to make it run smoother.

### GET BETTER PARTS

**A better Graphics Card** - If you want games to look better and run smoother, think about getting a better graphics card.

**More Memory** - To help games run faster, consider getting more memory (RAM).

**A faster Hard Drive** - If you use a regular hard drive, switch to a SSD Drive. It can make games load much quicker.

### CHECK, CHECK, CHECK

**Keep an Eye on Temperature** - Use a program like MSI Afterburner to check how hot your computer parts get. If they get too hot, your computer might slow down. Make sure they stay cool.

**Check for Viruses** - Use a good antivirus program to check your computer for viruses. Viruses can make your computer slow and cause problems.

### IMPROVE YOUR HARD DISK

**Organize Your Hard Drive** - If you don't use an SSD, you can make your regular hard drive work better by organizing it. You can use the Defragment and Optimize Drives tool in Windows.

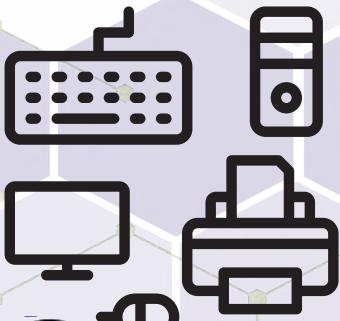
### CONCLUSION

By doing these things, you can make your gaming PC faster and have more fun playing games. It's important to take care of your computer so it works well all the time.



# 7 Controllers to replace gaming keyboards

How important are gaming peripherals? How do they impact the gaming experience?



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Simon and Inés are discussing using controllers as alternatives to gaming keyboards.



**Listen** to an expert who explains the advantages and disadvantages of using controllers for PC gaming and complete the table below.



## Advantages



## Disadvantages



## What is your opinion about this topic?

**Write a short paragraph (around 100 words) explaining the advantages and disadvantages of using gaming controllers for PC gaming.**

You can use this layout to help you:

## **TITLE**

## Paragraph 1: Introduction

## Paragraph 2: Positive aspects about controllers

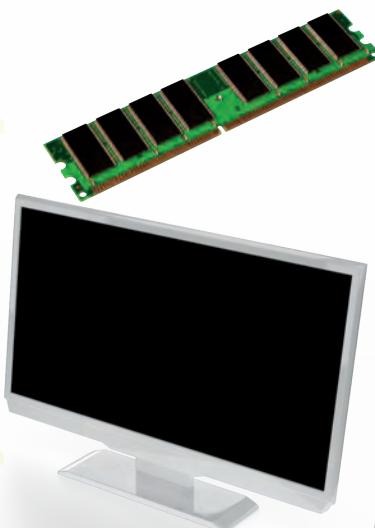
### Paragraph 3: Negative aspects about controllers

#### Paragraph 4: Conclusion

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# 8 Is the most expensive the best?

**Give** your opinion about the importance of selecting the right components for a gaming PC and how it can affect gaming performance.



*Are the most expensive components always the best choice?*

Diego, Inés and their friends enjoy playing video games in their free time. **Look** at the situations they are going through. Do you agree with the advice they mention? **Discuss** with your partners.



## Scenario 1

**Diego:** Hey, Inés, I've heard you're planning to build a gaming PC. Are you worried about how much it's going to cost?

**Inés:** Yeah, a bit. I want to make sure I get the best performance without spending too much.

**Diego:** You should focus on getting the right components. Spending a little extra on a good graphics card and CPU can make a big difference in gaming performance.



## Scenario 2

**Simon:** Camila, I want to buy a pre-built gaming PC, but they're expensive. Do you think it's worth it?

**Camila:** Well, pre-built PCs can be convenient, but you might end up paying more for components you don't need. It's better to build your own and choose each component carefully to get the best value for your money.



## Scenario 3

**Emma:** Hey, Freddie, why do you spend so much time researching PC components before buying?

**Freddie:** I want to make sure I get the best performance for my budget. Choosing the right components, like a good graphics card and enough RAM, can really improve gaming performance and make my games run smoother. It's worth the effort to get it right.



**Surf the net** and look for the most convenient places to buy components for gaming PCs. **Complete** the table with the information you found.

Component	Place	Price



**Compare** your findings with a partner. Which is the best place to buy?

# 9 virtual reality games

What is your opinion about the following headline? 

## THE DAILY NEWS

World • Business • **Technology** • Lifestyle • Travel • Sports • Finance

05.10.2020

No123456789

### Virtual reality (VR) games and their growing popularity

*Virtual reality (VR) games are taking the gaming world by storm, captivating players with immersive experiences and revolutionizing the way we play.*



**Read** the text and **answer** the following questions:



- 1 What is virtual reality (VR) gaming, and what does it offer players?
- 2 What is the primary function of a VR headset in gaming?
- 3 How does a VR headset create a sense of immersion for players?
- 4 How would you explain the concept of interactivity and motion in VR gaming?
- 5 What are the challenges associated with VR gaming, and how is the industry addressing them?
- 6 According to the text, what is the potential future of VR gaming?



# THE DAILY NEWS

World • Business • **Technology** • Lifestyle • Travel • Sports • Finance

05/10/2024

## Virtual reality (VR) games and their growing popularity

*Virtual reality (VR) games have taken the gaming world by storm in recent years. They offer players a unique and immersive gaming experience that goes beyond what traditional video games provide.*

*In this article, we'll explore the exciting world of VR gaming and discover what makes it so captivating.*



### What is Virtual Reality Gaming?

Virtual reality gaming is a technology that allows players to step into a virtual world using specialized equipment. The centerpiece of this technology is the VR headset, a device that you wear over your eyes. This headset tracks your head movements and displays a 3D environment that makes you feel like you're inside the game. When you move your head, the game world moves accordingly, creating a sense of presence and immersion.

### The magic of immersion

One of the key features of VR gaming is the level of immersion it offers. When you put on a VR headset, you're no longer just looking at a screen; you're transported to a different place. For example, in a VR adventure game, you can explore ancient ruins, climb mountains, or even battle dragons as if you were really there. The sense of scale and depth in VR is astonishing, making it feel like you're part of the game's universe.

### Interactivity and motion

VR gaming also emphasizes interactivity and motion. Most VR systems come with handheld controllers that allow you to interact with objects in the virtual world. If you're playing a VR cooking game, you can pick up ingredients, chop them, and cook just like you would in a real kitchen. The sense of touch and physicality adds a whole new layer of engagement to gaming.

### Challenges and advancements

While VR gaming is undeniably exciting, it also comes with some challenges. VR headsets can be quite expensive, and you need a powerful gaming PC or console to run them smoothly. Some players may also experience motion sickness when their real-world movements don't match the virtual environment.

However, the gaming industry is constantly working to overcome these challenges. VR hardware is becoming more affordable and developers are finding innovative ways to reduce motion sickness. As a result, VR gaming is becoming more accessible and enjoyable for a broader audience.

### The future of VR gaming

The future of VR gaming looks promising. As technology continues to advance, we can expect even more realistic and immersive experiences. Whether you're interested in exploring new worlds, solving puzzles, or competing in intense battles, VR gaming offers something for everyone.

In conclusion, virtual reality gaming has opened up a new dimension in the world of video games. With its unparalleled immersion, interactivity, and potential for growth, it's an exciting field that continues to captivate gamers around the globe.

**Read** the text again. Are the following statements *true* or *false*?

**Justify** your answer.



- 1 VR gaming is a technology that only uses audio effects to immerse players in a virtual world. \_\_\_\_\_
- 2 VR headsets track your eye movements to create a sense of presence and immersion. \_\_\_\_\_
- 3 The sense of touch and physical interaction is not a significant aspect of VR gaming. \_\_\_\_\_
- 4 Motion sickness is a common issue in VR gaming, but there are no solutions to address it. \_\_\_\_\_
- 5 VR gaming is becoming more accessible due to decreasing hardware costs and innovative solutions. \_\_\_\_\_
- 6 The text suggests that VR gaming has reached its peak potential and is unlikely to advance further. \_\_\_\_\_



**Get into small groups** and focus on a problem related to VR gaming.



- **Discuss** the problem.
- **Brainstorm** solutions.
- **Consider** the advantages and disadvantages of the proposed solutions.
- **Present** the problem and proposed solutions to the class.



Many people experience motion sickness when playing VR games. How can we reduce this issue? **1**

Some players find VR headsets uncomfortable to wear for extended periods. How can we improve comfort without sacrificing immersion? **2**

VR gaming can be expensive. How can we make it more accessible to a wider audience? **3**

**Summarize** the challenges and solutions discussed during the group presentations.

#### **EXTRA ACTIVITY**

*What is the importance of problem-solving and innovation in the gaming industry?*



**Write** a short paragraph summarizing the main points of the reading passage and your thoughts on the problem-based learning activity.

# 10 Building a tailored PC

Look at the three advertisements below. Which ad is more complete? Which computer would you buy? What are the differences between them?

**a**

**big sale!**

**HAL 9000**

- Intel Core™ i7 (5.0 GHz)
- Windows 11 Home 64-bit
- 16GB RAM
- SSD DISK 500GB Gen 4
- 23.8-inch, Full HD (1920 x 1080) vivacolor
- 3x USB - 2x HDMI - 1x RJ45 Ethernet
- NVIDIA® GeForce RTX™ 3060 graphics card
- Wi-Fi 5 (dual band) + Bluetooth 5.1
- 64px attached webcam + built-in speakers
- Polycarbonate carbon black chassis
- 120-key keyboard (English)

**BUY MORE**  
www.buymorestore.com

**\$1.499**

**b**

**AXUS P50**

**MEGA OFFER**

Enjoy everyday activity with this AXUS laptop. The Intel Celeron processor and 4GB of RAM allows you run programs smoothly on the 14-inch screen.

This laptop has a 500GB HDD disk that offers ample storage and its 12 hour-long battery life gives you the flexibility to work or study anywhere. The HD webcam with integrated mic+speakers is ideal for remote learning or working.

The AXUS P50 laptop comes with preinstalled Ubuntu OS, office management and video conference software. An HDMI cable, USB extension cord and mouse pad are included too.

**BRAND NEW OR PRE-OWNED**

**\$399,99**

**ORDER TODAY!**

[www.laptopforyou.com](http://www.laptopforyou.com)

**c**

**FLASH SALE**

**ALL-IN-ONE COMPUTER**

**MediaShell**

**\$ 560**  
**\$ 800**  
**30% OFF!**

- Intel Core i5
- Windows 11 Pro 64-bit
- 1 TB HDD
- 6 GB RAM
- 21:9 HD display touchscreen
- Wi-Fi & Bluetooth connection

Get in pairs and discuss.

What kind of person would be interested in buying these computers?



Ads created with postermywall.com and Canva.com

**Match** the three computers to their possible users. **Justify** your choices.



- 1 A student doing online homework: \_\_\_\_\_
- 2 A graphic designer creating a brand design: \_\_\_\_\_
- 3 A secretary doing general office work: \_\_\_\_\_
- 4 A gamer playing an intensive online game: \_\_\_\_\_
- 5 A traveling salesperson doing marketing presentations: \_\_\_\_\_
- 6 A company employee working remotely: \_\_\_\_\_

Which of the three computers...



- has the most advanced processor?
- allows you portability?
- has the highest RAM capacity?
- comes with gifts?

- offers the best graphics?
- offers the most storage space?
- is on sale?
- has the smallest screen?

**Complete** the definitions with terms from the ads.



- 1 \_\_\_\_\_ is a dynamic type of short-term memory where data is stored as the processor needs it.
- 2 \_\_\_\_\_ and \_\_\_\_\_ are two types of internal storage devices with a capacity of approx. 500 billion bytes.
- 3 \_\_\_\_\_ is a type of video card installed to display graphical data with superior clarity, color and definition.
- 4 \_\_\_\_\_ is a device designed to record or stream video to a computer or computer network.
- 5 \_\_\_\_\_ and \_\_\_\_\_ are two types of software that support the computers' basic functions.

Use your own words to **describe** these other items.



- keyboard: \_\_\_\_\_
- processor: \_\_\_\_\_
- HDMI cable: \_\_\_\_\_
- screen: \_\_\_\_\_
- chassis: \_\_\_\_\_

## Project Assembling a tailored PC

**Get into small groups. Record** a video tutorial explaining

how to assemble a tailored Gamer PC.

This time, you have to **assemble a functional gamer computer** according to a predetermined budget and **record** a video tutorial doing it.

**Materials needed:**

- Paper or cardboard cutouts representing computer components.
- Glue or tape.
- Markers or labels.
- Budget allocation sheet.

**Instructions:**

- **Work in groups** of 3-4 students.
- You have a **budget** of US\$1.000 to purchase the components for your computer.
- **Choose** the components you want from the **Computer Shop price list**. Think about the kind of games you want to play and the overall gameplay experience you want to have. Remember to respect your budget!
- Using paper or cardboard cutouts, **assemble** your gamer computer by arranging the components in the correct configuration.
- **Record** a **video tutorial** showing how you assembled the computer and explaining your choices.

**Presentation:**

- **Show** your video to the class, and be prepared to give further explanations if needed.
- **Watch** your classmates' videos.
- After each presentation, **ask questions** and **give feedback** on your classmates' choices.
- **Discuss** the importance of budgeting and decision-making in building a gamer computer system

In my opinion, ...  
I think, ....  
I believe that, ...  
The best option for me is ...

**SOS Box**

## COMPUTER Shop GAMER EDITION

### PRICE LIST

- **Motherboard:** US\$100
- **Central Processing Unit (CPU):** US\$200
- **Random Access Memory (RAM):**
  - 8GB DDR4: US\$80
  - 16GB DDR4: US\$140
- **Hard Disk Drive (HDD):**
  - 1TB HDD: US\$50
  - 2TB HDD: US\$80
- **Solid-State Drive (SSD):**
  - 250GB SSD: US\$60
  - 500GB SSD: US\$100
- **Power Supply Unit (PSU):** US\$80
- **Expansion Cards:**
  - Sound Card (optional): US\$45
  - WIFI Network Card (optional): US\$30

### Graphics Processing Unit (GPU):

- **Integrated GPU (included):** US\$0
- **Dedicated GPU (e.g. Nvidia GeForce GTX):** US\$180

### CPU Cooling System:

- **Air cooler:** US\$40
- **Liquid cooler:** US\$20

### Computer Case:

- **Optical Drive:** US\$20

### Keyboard:

- **Mouse:** US\$20

### Monitor:

- **24" Full HD:** US\$150
- **27" 4K:** US\$300

### Cables and Connectors:

- **US\$30**



## Key

1. B) 20%
2. A) TRUE
3. A) Lack of interest from women.
4. D) Carol Shaw
5. A) TRUE
6. A) Women in Games International (WIGI)
7. D) It provides a platform for women to share their experiences and insights in the industry.
8. D) All of the above.
9. A) TRUE
10. D) All of the above



In this unit, I learned that...

Something I need to revise is...

My favorite part of this unit was...

I felt...



# Rúbrica de Proyectos

Primeros pasos (1)	Estás en el camino (2)	Estás llegando a la meta (3)	Has llegado a la meta (4)	
<b>silueta textual</b>	<p>El texto que has presentado se puede ver como un solo cuerpo. Las oraciones se encuentran incompletas. Las ideas están entremezcladas y no se ve una diferenciación en párrafos. No se ven las diferentes partes del texto solicitado.</p>	<p>El texto que has presentado diferencia ideas pero no se diferencia en párrafos o se realizan párrafos pero se entremezclan las ideas. No se encuentran diferenciadas las partes del texto.</p>	<p>El texto posee párrafos bien diferenciados. No existen problemas de mezcla de ideas entre párrafos. Sin embargo, no se encuentran diferenciadas las diferentes partes del texto solicitado.</p>	<p>En el texto has incluido oraciones bien diferenciadas. Se puede ver que has construido párrafos. Se encuentran diferenciadas las diferentes partes del texto, ya sea a través de subtítulos o a través de la diferenciación en párrafos separados por un espacio.</p>
<b>contenido</b>	<p>Si bien es cierto que tienes idea de lo que se te ha solicitado, no tratas los temas que se establecen en la consigna de trabajo. Te expandes en ideas que no están relacionadas con el tema solicitado.</p>	<p>Has tenido en cuenta menos de la mitad de los temas que se te han solicitado en la consigna. O has tratado todos los temas pero has logrado desarrollar, argumentar o exemplificar menos de la mitad de ellos.</p>	<p>Has tenido en cuenta todos los temas de la consigna y argumentas, describes y exemplificas más de la mitad de ellos, aunque no todos. Puede suceder que trates más de la mitad de los temas y que todos estén fundamentados, descriptos o exemplificados. Sin embargo no has hecho dicho trabajo con todos los elementos solicitados en la consigna.</p>	<p>Has tenido en cuenta todos los temas que forman parte de la consigna de trabajo. Cada uno ha sido desarrollado, es decir, no solo se nombra sino que agregas ideas referidas al mismo. Además, el tema posee argumentos o ejemplos que ilustran las ideas. Cada párrafo contiene un tema concreto y no una mezcla de los mismos.</p>
<b>lenguaje</b>	<p>Las ideas del proyecto no se encuentran conectadas de manera de lograr una comunicación efectiva. Los errores de lengua y pronunciación han impedido la transmisión de tus ideas.</p>	<p>Los errores de lengua hacen que tus ideas no resulten claramente expresadas por momentos. Existen algunos errores de lengua y pronunciación que hacen que la transmisión de tus ideas sea poco clara.</p>	<p>El proyecto ha sido presentado en su formato escrito y oral de forma clara. Tus errores no interfieren con la presentación del proyecto, aunque algunos de ellos le quitan fluidez.</p>	<p>El proyecto ha sido presentado en su formato escrito y oral de forma clara y fluida. Se nota la preparación para la presentación, es decir tu audiencia logra comprender el mensaje que quieras comunicar.</p>

## Presentación

## Elementos paralingüísticos

## Compromiso y ética hacia el trabajo

### Primeros pasos (1)

Al realizar tu presentación te has parado detrás del material. ¿Crees que has mantenido contacto visual con tus compañeros como para involucrados en la presentación? Hablas bajo, piensa en tus compañeros del fondo que también deben y quieren escucharte.

### Estás en el camino (2)

Al presentar tu proyecto te diriges a la clase por momentos y en otras ocasiones pierdes contacto visual con tus compañeros. La clase debe poder verte y oírte de forma clara para así comprender todo lo que tratas de comunicar.

### Estás llegando a la meta (3)

Al momento de exponer te paras de tal manera que logras contacto visual y así conectar con tus compañeros la mayor parte del tiempo. Tu voz es clara pero aún necesitas buscar más estrategias para transmitir tu mensaje.

### Has llegado a la meta (4)

Durante tu presentación te paras al frente de la clase y te desplazas manteniendo contacto visual con tus compañeros, involucrándose en tu presentación. Hablas fuerte y claro demostrando seguridad, ya que no lees ni dudas al expresar tus ideas.

Haber incluido imágenes relacionadas al contenido de tu presentación, tal como habíamos acordado en la negociación de las pautas de trabajo, hubiese hecho que el contenido de tu proyecto fuera más claro y atractivo.

Has usado imágenes que si bien están relacionadas al contenido de lo que has presentado, lo podrías haber usado como ayuda para que tus compañeras/os y profesoras/es logren entender con mayor claridad lo que has planteado.

Has usado imágenes relacionadas al contenido de lo que has presentado. Debes tratar de llegar a un balance entre cantidad de imágenes incluidas, y su relación con la información planteada. Las imágenes no siempre ayudan a entender o a hacer atractivo tu trabajo.

Las imágenes incluidas han permitido que tus compañeras/os, tus profesora/es y cualquier persona que vea tu trabajo, pueda entender lo que estás compartiendo con ellos, además de hacer el trabajo más atractivo.

Has presentado tu trabajo incluyendo contenido interesante aunque no está relacionado al problema inicial.

Has incluido ideas de otras fuentes sin haber reflexionado sobre ellas o haber citado al autor.

Has presentado tu trabajo incluyendo contenido pertinente. Has incluido ideas de otras fuentes sin haber reflexionado sobre ellas o haber citado al autor. Has presentado tu trabajo incluyendo contenido pertinente. Has incluido ideas de otras fuentes aunque no en todos los casos las has citado o has reflexionado sobre ellas.

Has presentado tu trabajo incluyendo contenido pertinente. Lo has presentado usando tus propias palabras, intercalando reflexiones personales sobre el contenido que has incluido, e incluyendo citas sobre reflexiones de entendidos en la temática.

# Vocabulary Bank

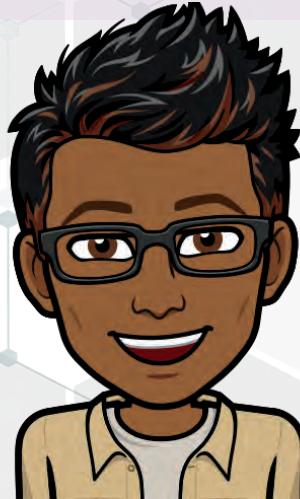
This space was created to keep track of new words and phrases you have learned throughout this book.

## Did you know.?



A vocabulary bank is a collection of new words and phrases that the learner or class builds up as they learn.

# Reflection Corner



You got to the end of this amazing journey and now it's time to reflect upon your progress. Let's complete the SWOT matrix.

## Did you know?

A SWOT matrix allows you to think about your own internal strengths and weaknesses. It also helps you think about external opportunities and threats that could affect your performance as a student.



**STRENGTHS**

**WEAKNESSES**

**S**

**W**

**O**

**T**

**OPPORTUNITIES**

**THREATS**

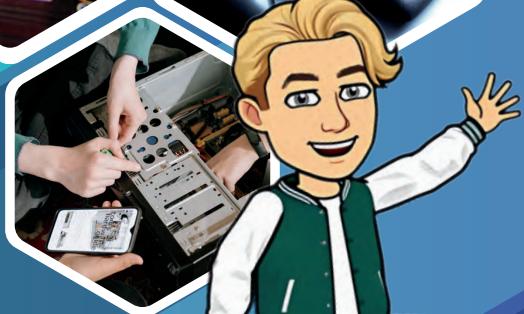
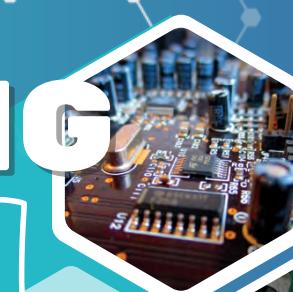




# #WORKING URUGUAY

NIVELACIÓN

1



**ANEP**

CONSEJO  
DIRECTIVO  
CENTRAL

DIRECCIÓN  
DE POLÍTICAS  
LINGÜÍSTICAS