SAMPLE CHAPTER

LevelUp

Through **Digital Discoveries** 3

Mc Graw Hill

binarylogic

LevelUp

Through **Digital Discoveries**

Contents

Hi! I'm Kim.
I will help you learn how to use your computer. Together we will explore new technologies. Turn on your computer and follow me!

Key Features

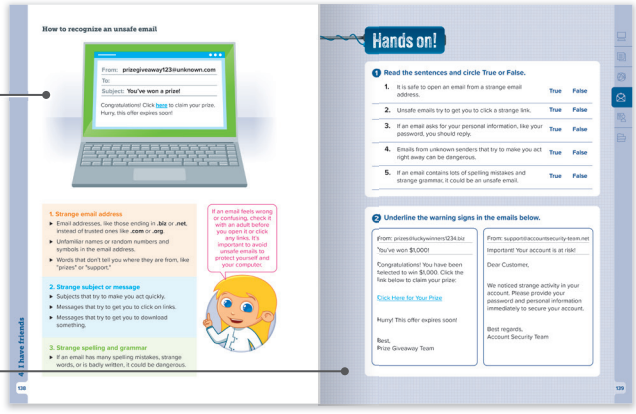
An innovative approach to building digital competencies, developed by expert educators.

Each unit offers straightforward explanations and contemporary examples, making technology concepts accessible and relevant.

Curriculum aligns with the latest industry standards, preparing students for certifications and future careers.

Every unit includes a variety of tasks and activities designed to help students build essential digital competencies.

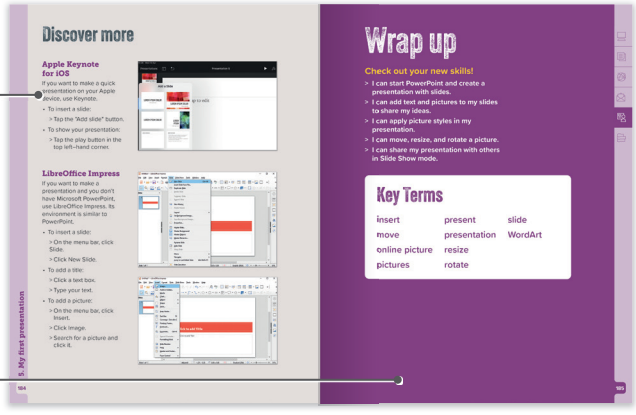
Projects and exercises throughout the course reinforce students' understanding and practical application of digital skills in real-world scenarios.



Well-defined learning goals and hands-on, applicable digital skills.

Students learn about platform diversity, expanding their digital toolkit and adaptability.

Each unit organizes key terms that are crucial for digital literacy, equipping students for today's technology-driven workplace.



1. My devices

Computers are important because they store pictures, stories, and even voices. In this unit, you will learn about devices to store files and print pictures or writing. You will use special devices to record your voice or take a picture. You will also learn how to use these devices to communicate with your computer.

Learning Objectives

In this unit, you will:

- identify devices to store files.
- identify how various input devices work.
- choose the right device to store files based on the type and size of the data.
- identify different types of printers.
- identify different interactive devices.
- interact with a computer using input devices like touchpads or touchscreens.

LESSON 1

Storage

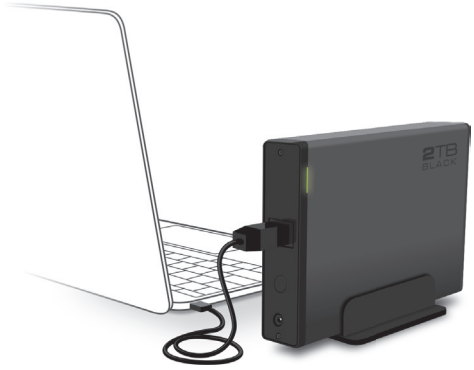
Why do you think it's important to have different types of storage devices for saving data? How do you decide which device is best to use?

Saving your data

Your computer stores data in an **internal hard disk drive,** usually called the "C: drive." If you have too much data, you can use an external data storage device.

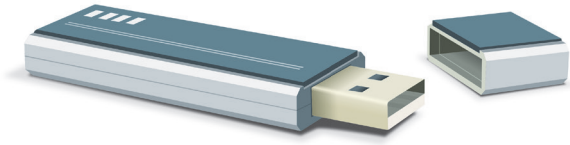
The disk drive

The **hard disk drive** is a common external data storage device. It has the largest storage space of all storage devices. It can store a thousand movies or a million songs.

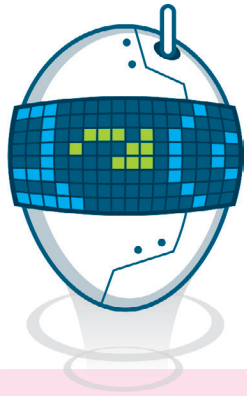


USB flash drive

You can store data on a **USB flash drive** and easily transfer it to a computer or other device. USB flash drives are less expensive than other storage devices. They are light, but hard to damage. You can put a USB flash drive on your key chain and carry it with you.



Examples of data storage devices are hard disk drives, CDs/DVDs, USB flash drive, and memory cards.



History

In the 70s and 80s, the main storage device for personal computers was the floppy disk. Floppy disks are thin, flexible magnetic disks. Nowadays, they are out-of-date as their storage space is very small.

You can also use the following storage devices to transfer data from one computer to another or between a computer and a smartphone.

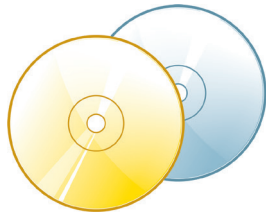
Memory card

Memory cards are very thin and small. You can use them with smartphones, digital cameras, tablets, and game consoles. You can also use a memory card to transfer data from these devices to your computer.

CD/DVD

You can store whatever you want on a **CD** (Compact Disc) except for movies, because it doesn't have enough space. **DVDs** (Digital Versatile Discs) are the evolution of CDs, and are similar, but have much more space. You can store several movies on just one DVD.

Remember: you must be careful not to scratch their surface, or your data will be lost!



Blu-ray

Blu-ray discs are the evolution of DVD. A Blu-Ray resembles a DVD, but it can store much more data. Actually, a Blu-ray can store high-definition movies and thousands of songs.

History

Some older ways of storing information, like CDs and DVDs, have been replaced by newer ones that are faster and can hold more data

Hands on!

1 Read the sentences and circle True or False.

1.	The internal hard disk drive is usually called the "C: drive."	**True**	**False**
2.	Hard disk drives have the smallest storage space among all storage devices.	**True**	**False**
3.	USB flash drives are expensive and heavy.	**True**	**False**
4.	Memory cards can be used with smartphones, tablets, and cameras.	**True**	**False**
5.	Blu-ray discs can store high-definition movies and have more storage space than DVDs.	**True**	**False**
6.	CDs have more storage capacity than DVDs.	**True**	**False**

2 Fill in the blanks.

DVD | USB flash drive | memory card | hard disk drive

1. A _____ is used to store data in devices like smartphones and cameras.

2. A _____ can store a larger amount of data than other devices.

3. To transfer files easily between computers, you can use a

_____.

4. You can store movies or music on a _____.

3 Read the sentences and put a check mark for the correct answer.

1. To transfer a video from your computer to a tablet, you will need a:

- ( ) **a.** DVD.
- ( ) **b.** memory card.
- ( ) **c.** hard disk drive.

2. DVDs are the evolution of:

- ( ) **a.** CDs.
- ( ) **b.** hard disk drives.
- ( ) **c.** memory cards.

3. A practical device for saving your school projects on a computer and taking them to another computer is:

- ( ) **a.** memory card.
- ( ) **b.** USB flash drive.
- ( ) **c.** CD.

4. If you need to store a movie, use a(n):

- **a.** CD.
- **b.** external hard disk drive.
- **c.** DVD.

5. Photos in a digital camera are stored on a(n):

- **a.** USB flash drive.
- **b.** external hard disk.
- **c.** memory card.

4 Your computer is almost full, and you need to save a project with videos, photos, and documents. You have a USB drive and an external hard disk drive. Which one would you choose and why?

LESSON 2

Print

How do you think printers have changed the way we share and use information? When might you need to print something from a computer?

From screen to paper

Did you know that anything that is displayed on your screen can be printed on paper? You can print text, numbers, images, and photos. The device that can do this is called a printer. The printer is usually connected to the computer with a USB cable or via Wi-Fi.

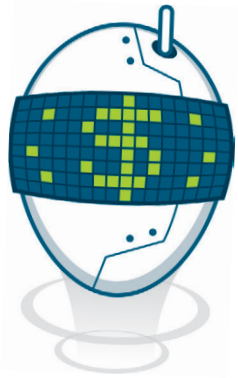
To print something, make sure that your computer is connected to the printer and the printer is turned on.

Printers

There are three main types of printers.

Inkjet

The most common type of printer is an inkjet printer. It uses four colors of ink: cyan (blue), yellow, magenta (pink), and black. The printer sprays tiny drops of these inks onto the paper to create pictures and words. With just these four colors, it can print almost anything! Inkjet printers are less expensive than other types of printer. To print clear, beautiful photos, special photo paper is needed.



To protect the environment and save money, refill your empty ink cartridges.

Laser

Laser printers use laser rays to print on paper. The speed and quality of printing is very high. In the past, there were only black-and-white laser printers, but now they can also print in color. Laser printers are more expensive than inkjet printers.

Thermal

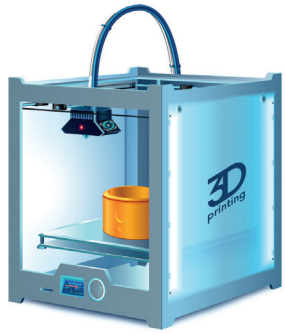
Shops, supermarkets, and restaurants use thermal printers to print receipts. A thermal printer uses a special kind of paper that is long and narrow. It usually prints text in black ink.

Smart Tip

Think about the planet. It is very important to recycle paper, ink, and toner cartridges.

3D printer

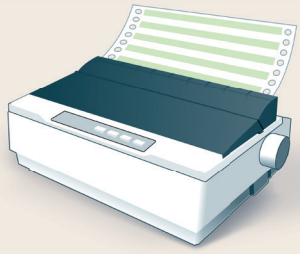
A 3D printer is a special type of printer that creates three-dimensional objects instead of printing on paper. It uses materials like plastic, resin, or metal to build items layer by layer, following a design made on a computer.



Some other types of printers for work purposes are:

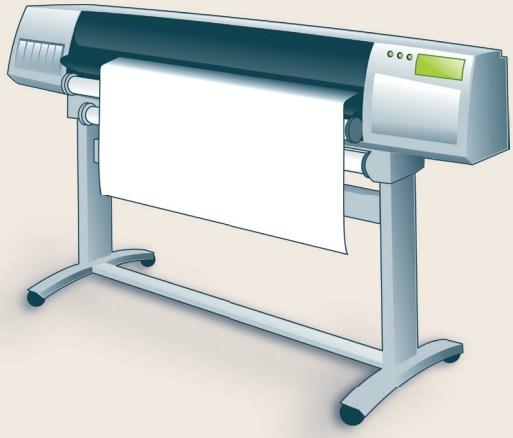
Dot matrix

The dot matrix printer is the oldest type of printer available, and it is hardly used anymore. With this printer, you could print many copies at the same time, but the quality was very low.



Plotter

The plotter is the biggest type of printer available. In the past, it had pens which drew lines on large pieces of paper, but now it uses inkjet technology. This device is used for building design plans and large advertising banners.



Scanner

Scanners are special devices that can photograph an image or document and then import it to your computer.

Hands on!

1 Read the sentences and circle True or False.

1. If you were printing a building design plan, you would use a plotter. **True** **False**

2. An inkjet printer uses black, white, and red ink. **True** **False**

3. You can print many copies at the same time using a dot matrix printer. **True** **False**

4. A laser printer is more expensive than an inkjet printer. **True** **False**

5. Shops print receipts using thermal printers. **True** **False**

6. Inkjet printers are more expensive than other types of printers. **True** **False**

2 Fill in the blanks.

inkjet | laser | thermal | envelopes

1. _____ printers are best for printing high-quality photos.

2. _____ printers are commonly used in shops to print receipts.

3. You can print on different materials, like stickers or _____.

4. _____ printers are known for their speed and high-quality printing, especially for documents.

3 **Imagine you need to print 200 pages of a book quickly and in high quality. Which type of printer (inkjet, laser, or thermal) would be the best choice and why? Write a short paragraph explaining your answer.**

4 **If you had to choose one type of printer for your school to use, which one would you pick and why?**

LESSON 3

Capture

Why do you think devices like microphones and cameras are important for interacting with computers? How do they help us save special moments and information on the computer?

There are devices that capture sound, video, and images, such as microphones, webcams, digital cameras, smartphones, and video cameras.

Microphones

A **microphone** is a sound capture device. It collects sound waves, such as your voice, and converts them to a digital form so your computer can understand them. You can connect a microphone to your computer, and your voice recordings will be stored as audio files. This way, you can listen to the files at any time or send them to a friend.

Microphones have many uses, such as in telephones and smartphones, video recorders, karaoke systems, movie production, and radio and television broadcasting.

When you chat with a friend, you can use a microphone to speak and headphones to listen to what your friend says.

Web cameras

A **web camera**, or **webcam**, is a video capture device that feeds videos or images into a computer in real time. You can also record images or clips and save them on your computer, send them by email, or upload them to the Internet.

The video quality of webcams today is much better than it was before. Most of them have microphones and some are also wireless. Nowadays, laptops and desktop monitors have built-in webcams.

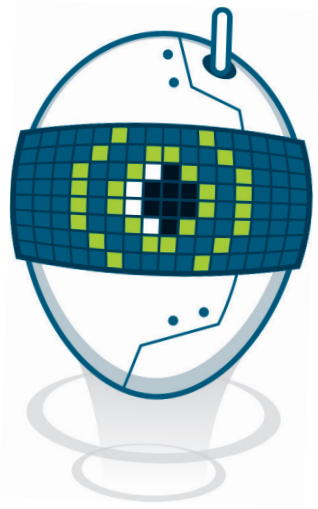
You can use a computer's webcam to make video calls. You use a video calling program to do this.

History

The webcam got its name from the World Wide Web, because we mostly use it when we are online.

Webcams can serve as a "magic mirror" by allowing, for example, an online shopper to see a virtual item. Webcams support people working from home by using the Internet instead of traveling to an office. Webcams are also used as security cameras.

Digital cameras

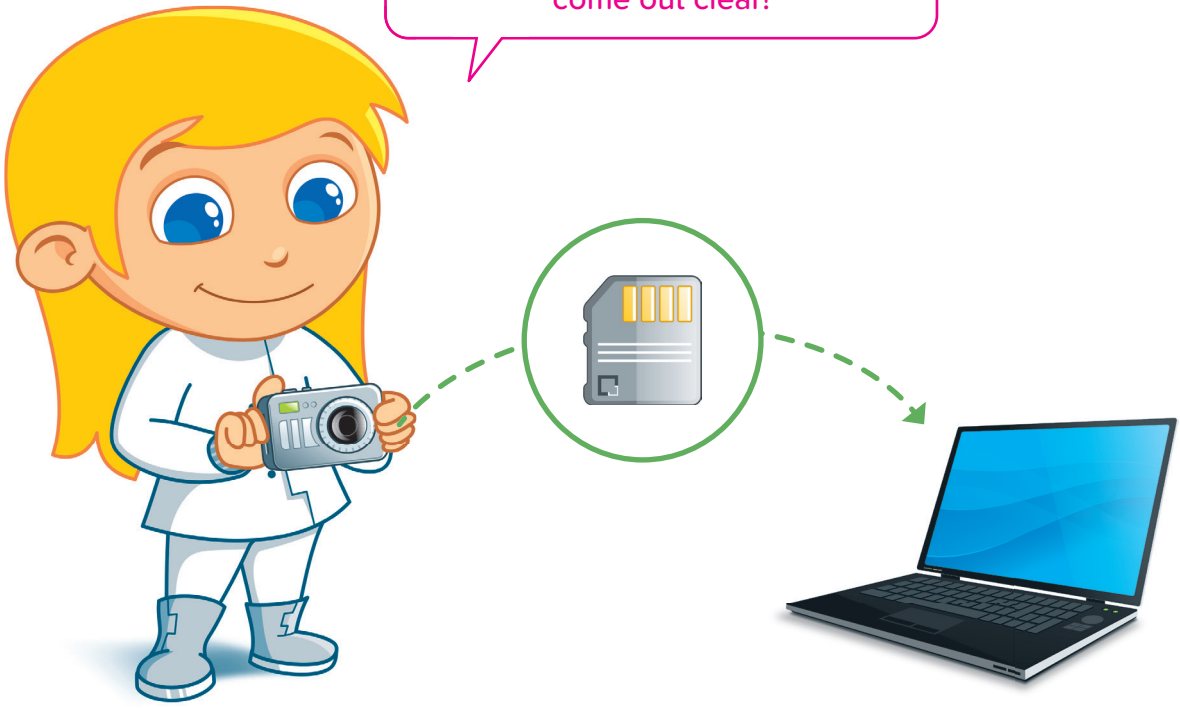


A **digital camera** is an image capture device that you can use to take high-definition photos. This camera can display photos on a screen the minute you take them.

Today, digital cameras are built into mobile devices such as tablets and smartphones. There are also digital cameras that are separate and are only cameras.

Digital cameras store photos and videos on a memory card. You can use the memory card to transfer images from your digital camera to your computer and store them safely. There are free programs that you can use to edit and improve your photos on your computer.

Keep your digital camera clean by gently wiping the lens with a soft cloth to make sure your photos come out clear!



Smartphones

A **smartphone** is a device that combines many capture tools in one. You can use its camera to take photos or record videos, just like a digital camera. It also has a built-in microphone to record your voice or other audio. Using a smartphone's camera and microphone, you can make video calls.

Video cameras

A **video camera** is a recording device that is used to capture motion pictures.

For many years, video was captured and stored on videotapes, and later on CDs. Today, we use memory cards which make it very easy to transfer and save videos onto a computer.

The first video cameras were large, heavy, and produced low-quality video. Today, video cameras are small, easy to use, and can record hours of video on a tiny memory card. Some can even be used to record at night.

We use video cameras in many places to record special moments, like celebrations, or to make television shows and movies. Scientists also use video cameras to help with their experiments, and even astronauts use them in space missions.

History

John Logie Baird created the first video cameras, and the British Broadcasting Corporation (BBC) used them in experimental broadcasts in the 1930s.

Hands on!

1 Read the sentences and circle True or False.

1. A digital camera captures video for live chats and video calls. **True** **False**

2. The main use of a webcam is to take videos for later editing and sharing. **True** **False**

3. A microphone is used to record voice for videos. **True** **False**

4. The first video cameras were light and the resulting video was of high quality. **True** **False**

5. You can use a smartphone's camera to take photos or record videos. **True** **False**

2 Fill in the blanks.

audio | video | microphone | digital | webcam

1. A _____ captures sound and turns it into digital _____ files.

2. A _____ is used to capture live _____ for video calls.

3. A _____ camera can take high-definition photos and store them on a memory card.

3 Draw a line to match the devices with their use.

1. 

2. 

3. 

4. 

- **a.** Making a video of a family party.
- **b.** Video calling your friend.
- **c.** Recording your voice.
- **d.** Taking photographs on a trip.

Which of these capture devices do you have at home and which do you have at school?

Home	School

LESSON 4

Interacting

How have devices changed the way we interact with computers? What are some benefits and challenges of using these tools?

You can use a keyboard and a mouse to work with a computer, but there are also many other ways to interact with it.

Touchpads

A **touchpad** has a special surface that can understand the position of your fingers as the position of the cursor on the screen. It can replace your mouse.

You can find touchpads on laptops. Some touchpads can detect more than one finger. You can give commands to zoom in and out with your fingers.

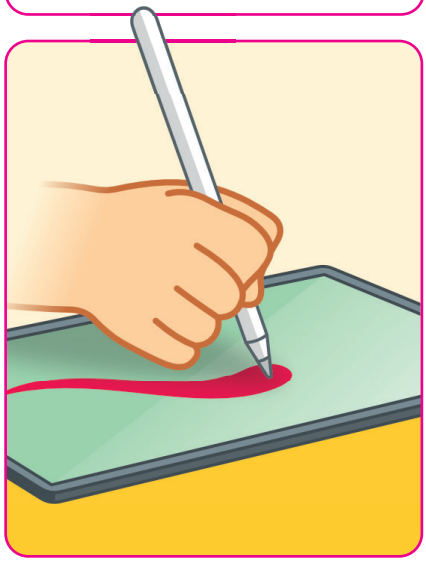
Touchscreens

You can use a computer without a keyboard, mouse, or touchpad. You can give commands just by touching the device's monitor. This special monitor is called a **touchscreen**.

In the past, touchscreens were very expensive and were only used in hospitals and factories for special purposes. Now, they are everywhere: from everyday devices such as mobile game consoles to tablet computers and smartphones.

Some tablets or smartphones come with a small object that looks like a pen. It is called stylus, and you can select something or draw on your screen with it.

Touchscreens are sensitive to fingers and a special pen called a stylus. Styluses have precise tips on one end and digital "erasers" on the other.



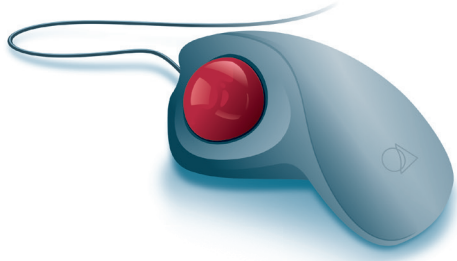
You can install a transparent plastic screen protector to protect your touchscreen from scratches.

Graphic tablets or digitizers

A **graphic tablet** or digitizer is an input device that allows you to hand-draw images and graphics, just like with a pencil and paper. This device is very popular among graphic designers.

Trackballs

A **trackball** is an input device that resembles an upside-down mouse with a ball in the middle. You can roll the ball with your fingers or palm.



Gamepads

A **gamepad** is a type of game controller. It consists of different buttons and thumbsticks.

Joysticks

Joysticks are game controllers that have a large place to grip with your hand and buttons. They are used for flight simulators or action games.

Gamepads come in different forms. For example, a driving wheel is a special gamepad just for car driving simulations. They are also called joypads or control pads.

VR headsets

Virtual reality (VR) is technology that makes you feel like you are somewhere else, but that place isn't real, it's made by a computer. A VR headset is one way to interact with the virtual environment.

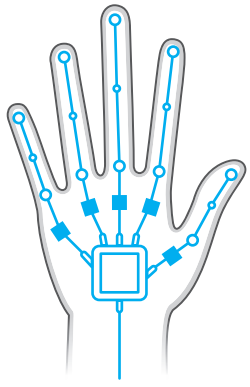
A **VR headset** includes all of the buttons that are mounted to the side of the headset and motion controls. It is used in everyday gaming situations.

How could a VR headset make a lesson about coral reefs more exciting or helpful?

VR gloves

A **VR glove** resembles a simple glove.

It puts your hand into the VR environment so that you can see your hand movements. It can allow you to feel like you are touching things in the VR environment. It gives you more precise control. VR gloves are used in virtual reality and robotics.

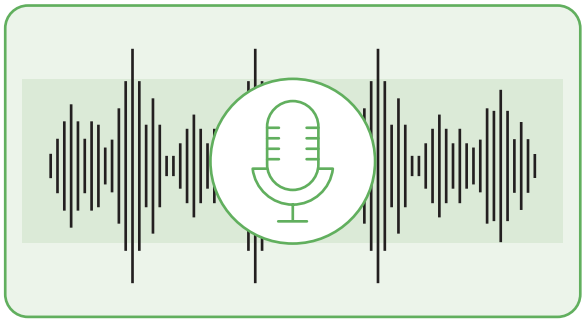


Assistive technologies

Assistive technologies are special tools that allow people to interact with technology in alternative ways. These tools support people to work, play, and learn in ways that suit their individual needs. While many of these tools were designed to support people who have trouble seeing, hearing, moving, or learning, everyone can benefit from them.

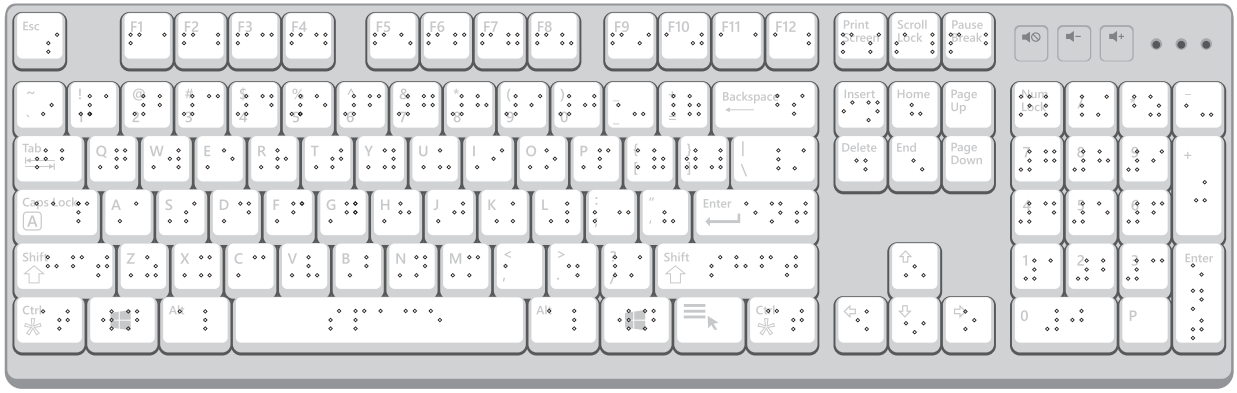
Speech recognition

Speech recognition technology allows users to control devices and enter text by speaking instead of typing. It is especially useful for people who have difficulty using a keyboard or mouse. By using their voice, users can open apps, write documents, search the Internet, or even manage smart home devices.



Braille keyboards

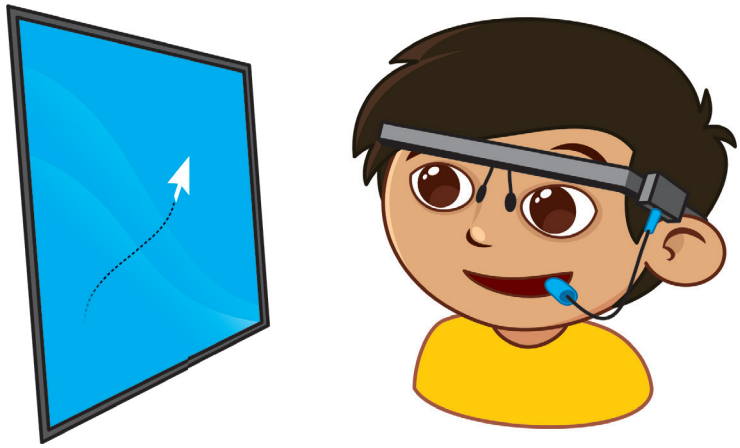
A **Braille keyboard** has special keys with raised dots that represent Braille characters. People who are visually impaired or blind can use their sense of touch to type and navigate on computers and other devices. They can feel the raised dots on the keys and use them to input text or move around on the screen.



Head mouse

A **head mouse** is a device that helps people who cannot use their hands to control a computer. The head mouse tracks the movement of the user's head and translates it into mouse movements on the screen.

Users can move the cursor and select items by moving their head, and some head mice also work with switches or facial gestures for clicking.



Hands on!

1 Fill in the blanks.

stylus	touchscreen	joystick	VR glove	VR headset

1. A _____ makes you feel as if you are in a different world by creating a virtual reality experience. It is worn over the eyes and is commonly used in gaming.

2. A _____ is a device often used in flight simulators or action games, allowing you to control movements easily.

3. A _____ lets you give commands by touching the monitor with your fingers, making devices like smartphones and tablets easy to use.

4. A _____ is a pen-like tool with precise tips that helps you interact with touchscreens.

5. A _____ is a wearable device that allows users to interact with virtual environments by providing hand and motion control.

2 Draw a line to match the device to its function.

1. touchscreen	•	**a.** Used for designing or drawing by hand.
2. joystick	•	**b.** A controller that is commonly used in flight simulation games.
3. graphic tablet	•	**c.** Allows users to interact with a computer by touching the screen.

3 Read the sentences and circle True or False.

1.	Speech recognition technology allows people to control devices and type text using their voice.	**True**	**False**
2.	A head mouse is a device used by people who cannot use their hands to control the computer mouse, tracking head movements instead.	**True**	**False**
3.	Braille keyboards are designed for people who are visually impaired or blind. These keyboards have raised dots to help users type and navigate.	**True**	**False**
4.	Assistive technologies are only useful for people who have physical disabilities.	**True**	**False**
5.	A VR glove is used to make typing on a keyboard more accurate for people who cannot hear.	**True**	**False**

4 **Imagine you are working on a digital drawing project. You have a graphic tablet, a touchscreen, and a mouse. Which one would you choose? Why?**

5 **If you could design your own computer tool to help people interact with a computer, what would it be? Describe how it works and who it would help the most.**

Project

Designing a tech room

Design your tech room and explore devices, storage, and creative fun.

1. Draw the layout of your technology-filled room. Add furniture where different devices would go, such as a computer, printer, or gaming console.

2. Identify which storage devices you would use for your room. Think about what types of files you would have, like photos, school projects, or videos. Your storage options are a hard disk drive, USB flash memory, and a memory card. Write a short paragraph explaining what storage you would choose and why.

3. Imagine you have important school projects or art pieces you want to print and display in your room. Choose between an inkjet or laser printer and explain why your choice is best for your needs.

4. Add fun ways to interact with technology in your room. Options include a touchscreen computer, a VR headset for gaming, or a graphic tablet for drawing. Describe a fun activity you would do with each device.

Reflect

1. How do the different devices in your room make life easier or more fun? Would you use them for school, hobbies, or both?

2. What are some safety rules you would need to follow when using these devices in your room?

3. If you could invent a new technology device for your room, what would it be and what would it do?

Wrap up

Check out your new skills!

- I can identify different devices used for storage, printing, and capturing data.
- I know how to store files using a memory stick or external hard drive.
- I know how to choose the best storage device for my files.
- I understand the differences between inkjet, laser, and thermal printers.
- I can use a microphone or webcam with my computer.
- I understand how different devices interact with my computer.
- I can identify different interactive devices.

Key Terms

CD
digital camera
dot matrix
DVD
gamepad
hard disk drive
inkjet printer
joystick
laser printer
memory card
microphone
plotter
printer
store
stylus
thermal printer
touchpad
touchscreen
trackball
USB flash drive
Virtual Reality (VR)
VR headset
VR glove
web camera