

Teaching English to Visually Impaired Learners

Session 2. Tools and Resources

Tools for Learners who Work in Print

Learners with severe visual disability often access information in print using some kind of hardware or software which helps them by enlarging the font or images or using different contrasts. The following are a few examples we are likely to come across when working with visually impaired learners.

[Accessibility of operating systems](#)

[Screen magnifiers](#)

[LEO reader pencil](#)

Accessibility of operating systems

The operating systems of our computers are equipped with their own accessibility tools that make it easier to navigate them. These tools can be activated and deactivated depending on the user's needs.

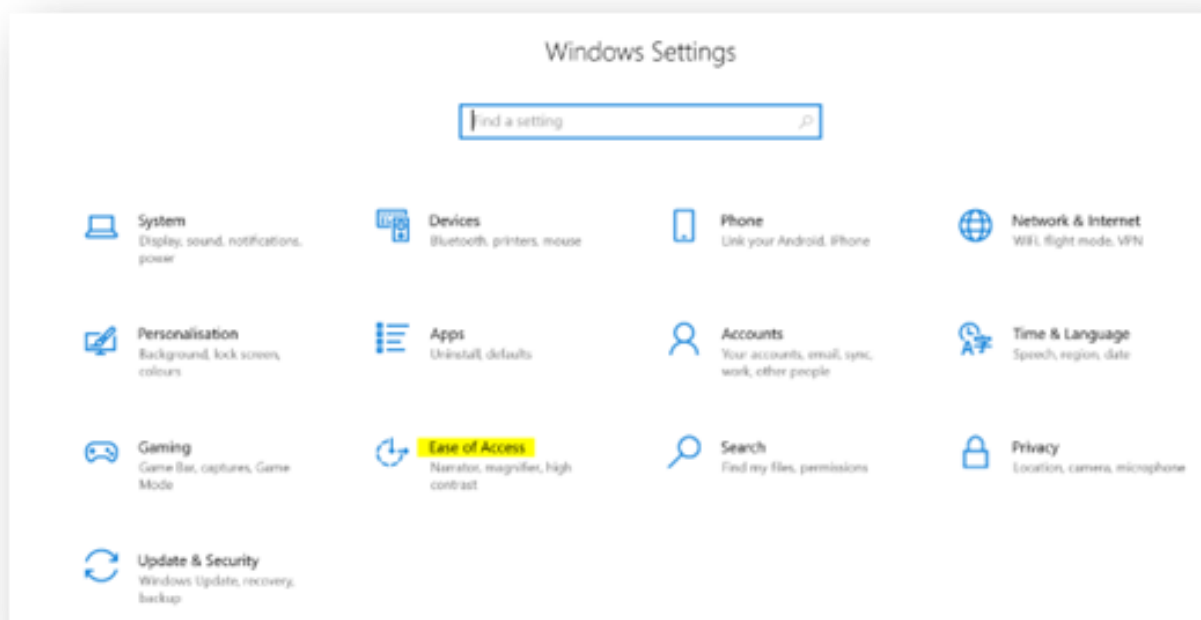
The following are accessibility tools for low-vision users from the most common operating systems.

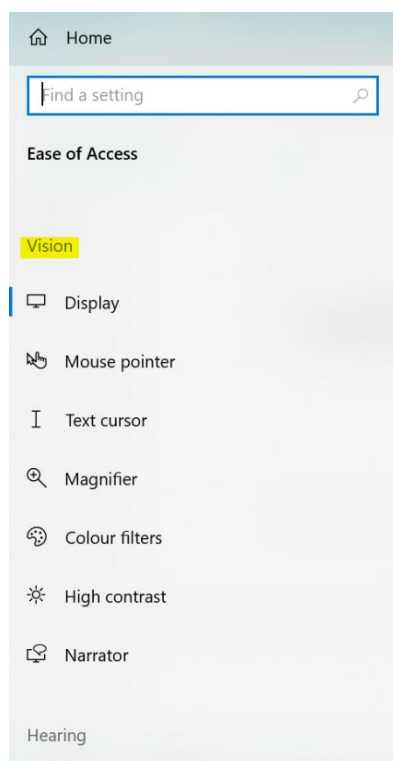
Windows

To access the Windows accessibility options, we go to the Settings window from the search bar located in the left bottom corner of the screen or by pressing the Windows key.

In 'Windows Settings' select 'Ease of Access' and then the accessibility options depending on the disability (vision, hearing or interaction).

In this case, we will explore the vision options:



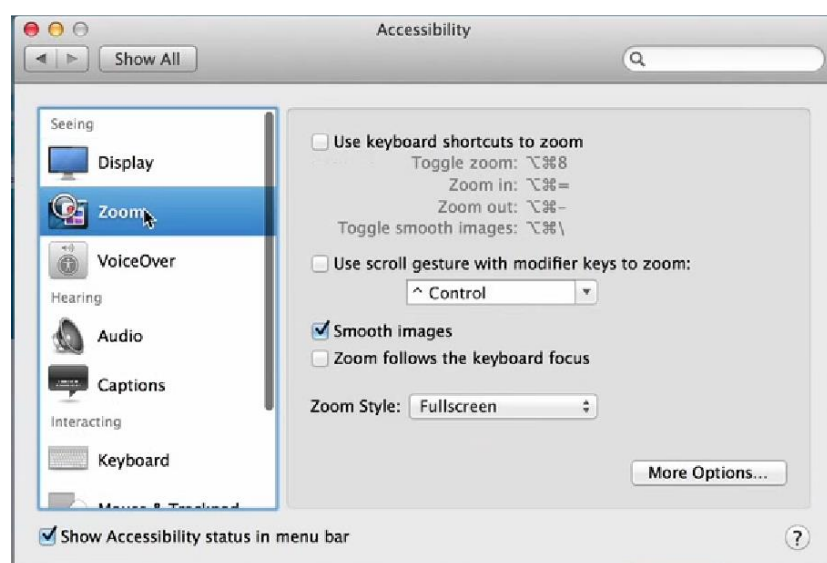


1. **Display:** You can adjust the size of the text and the scale at which the elements will be seen on the screen. You can also change the brightness and animations.
2. **Cursor and pointer:** You can change the size, colour and visibility of the cursor and pointer.
3. **Magnifier:** Pressing the Windows key and the “+” or “-” sign will activate the Windows magnifier. Press the Windows key and Esc to exit the magnifier. It is also possible to change the screen zoom, magnifier view and their settings.
4. **Colour and high contrast filters:** These settings can improve visibility and make elements on the screen easier to see. You can choose from several colour filter options depending on which one suits each person best.
 Activate and deactivate the colour filter using the Windows + “Ctrl” + C keys.
 When this option is activated on a student's computer, they may have difficulty viewing some documents, especially Power Point. If this happens, you should change the colour of the slide or try to find a more suitable setting that allows all students to also see the class work.
5. **Narrator:** This feature reads the text and elements on the screen aloud. You can turn the narrator on or off and change its settings. Find out more about this screen reader in the document “Tools for Learners who Work in Braille BC_ONCE”.

Easy Access: You can access the most frequently used accessibility options directly from the login screen.

MacOS

To access the accessibility settings, go to the upper right-hand corner and click the Apple key, select “system preferences” and in that window, “accessibility”.



1. **VoiceOver:** This is the tool Apple uses to read aloud what appears on the screen to users. If you want to customize the use of this Accessibility feature you can use “VoiceOver Utility”. Find out more about this screen reader in the document “Tools for Learners who Work in Braille BC_ONCE”.
2. **Zoom:** Apple has two different ways of enlarging the screen. Using the mouse or trackpad to zoom in on the whole screen, or just a specific area of it. Additionally, if you use a secondary screen with your Apple computer, you can choose which screen you want to zoom in on, as well as zoom in on both. You can also use floating text or zoom with any element below the mouse pointer, be it text, fields, menu items or buttons. This zoom feature will be high resolution and in a separate window.
3. **Screen:** It is possible that animations on the Mac screen sometimes make it impossible for low-vision users to use it properly. For this reason, in MacOS there are a series of ways to reduce movement and animation in certain applications. The MacOS screen setting

options are: invert colours, reduce motion, increase contrast, reduce transparency, differentiate without colour, menu bar size, show contrast and increase cursor size.

4. **Read content/voice:** in this section we can choose a preferred voice type, activate ads to regain attention or when alerts are displayed.
5. **Descriptions:** voice description of the multimedia part of the screen contents.

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Screen magnifiers

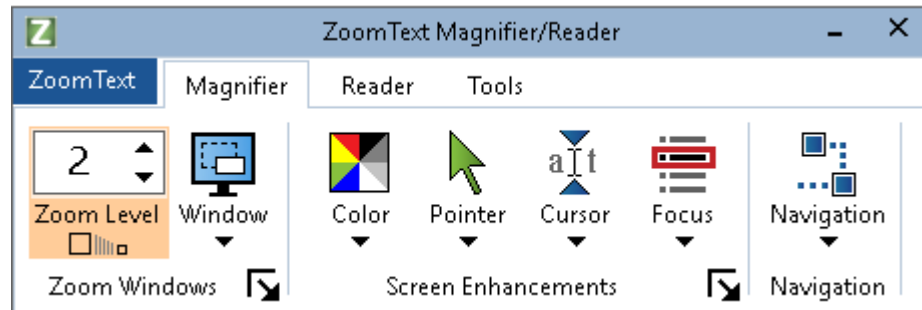
Screen magnifiers, or screen enlargement systems, are software or hardware devices that allow you to view the screen with a considerable increase in its size, which is an aid for people with vision problems. With these technical aids, a user who has some visual impairment can see the computer screen by increasing its size.

Microsoft, Macintosh and Linux operating systems, in their accessibility options have screen magnifiers incorporated.

But there are also programs developed to perform these functions and facilitate the viewing of the screen by people with low vision. The most common is ZoomText.

Software

ZoomText: [Download ZoomText](#) (You can download a demo with all the program's functionalities, but with a duration of 40 minutes per session).



It is a screen magnifier that allows a person with visual impairment to work on a computer with a Windows operating system.

It has support through voice synthesis that makes it more comfortable to read and follow texts, especially when they are several pages long.

It has various magnification levels that allow the user to select the font size they need. The most used and comfortable magnification system is usually full screen, but there are also others, such as screen zoom, or dividing the screen into two halves, one enlarged and the other in real size. They allow you to configure colour contrasts between backgrounds, letters or preferred ranges (greys, blues, yellows, etc.).

It also allows you to connect a camera via USB and use it to view enlarged information on a document or whiteboard. In this case, the camera must be of high resolution and be on an appropriate support.

Hardware

As hardware we find TV magnifiers or electronic magnifiers. These are devices that favour the increase of texts, images or any element that is focused on. The most common among students is the Magnilink Student magnifier.

Magnilink Student



Magnilink Student Addition is a portable colour CCTV (Closed Circuit TV) system that allows two operating modes: text reading and remote camera. It is powered through the USB port and all its functions are managed from the computer.

Connectable to personal computer/laptop via USB or directly to a VGA monitor, TV or any external display. It has software that allows viewing on the PC screen.

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“LEO” voice labelling system

LEO voice labelling system

Note:

1. You can see the subtitles of this video in the language you prefer as follows:
2. Press the settings option that appears within the video at the top right.
3. "Disabled" will appear in the subtitles option and it suggests that you can activate them in Spanish.
4. Choose the "Spanish" option.
5. Once the Spanish subtitles appear, press the configuration option - subtitles again. Then a new option will appear: "translate automatically". There you can select the language you prefer.

The LEO voice labelling system is a pen-shaped device. The reader sensor is located at its tip. This reader is associated with stickers onto which you can first record audio messages, and then play them. To listen to the messages, simply touch the stickers on which they have been previously recorded.

LEO is an example of one of the most accessible optical readers, but there are many others on the market that can be used. In the following link you can see some examples:

[PenFriend audio labeller](#)

More videos about PenFriend:

<https://www.youtube.com/watch?v=QU0-g9SoAf0>

<https://www.youtube.com/watch?v=4VcnoufrboM>

https://www.youtube.com/watch?v=xY7_238l6lM

<https://www.youtube.com/watch?v=4Xv8Uf1jx2I>

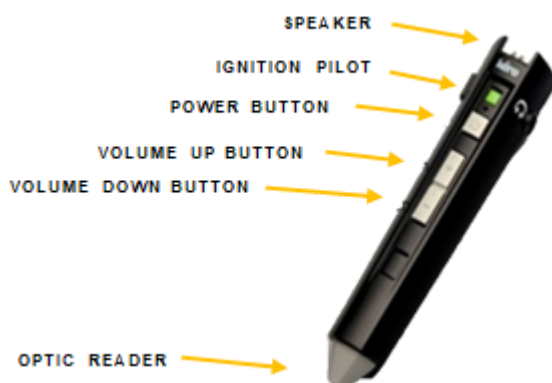
[Listen and record your voice with the PENpal.](#)

More videos about PENpal:

<https://www.youtube.com/watch?v=RwS3mgLS8RU>

Parts of the LEO voice labelling system:

- Front:



- Sides:
 - Audio output for headphones or speakers.
 - Input for a USB connector (on the opposite side).
- Back:
 - Battery compartment cover.
 - MicroSD card slot (removing batteries).

Memory and Storage:

- The LEO has an internal memory of 2 GB, allowing you to record up to 120 hours of messages.
- If you need more space, you can use a microSD card in the corresponding slot.

Main functions:

- Read stickers: Turn on the reader and place the tip on the sticker to hear the associated message. Once the pencil launches the file, it is not necessary keep it on the sticker, allowing you to explore the material hands-free.
- Record stickers:
 - Turn on the LEO and place the tip on the sticker.
 - Press and hold the “+” or “-” button to start recording.
 - Record the message and release the button to end.

- Volume control: Use the “+” or “-” keys to adjust the volume while the sound is playing.
- Remove content from a sticker:
 - Touch the sticker with the tip of the sensor. The reader will play the recorded message.
 - Press the “+” and “-” buttons simultaneously to delete the associated message.
- Message replacement: You can replace the message of a sticker without deleting the previous content, to do this, press and hold the “+” or “-” button to record the new message.
- Automatic shutdown:
 - If the LEO is idle for 60 seconds, it will automatically turn off to save power.

Sticker uses:

- Reuse of sticker:
 - Adhesive tags can be attached to various materials such as cardboard, glass, plastic, metal or wood.
 - Depending on the previous material, the sticker can be peeled off and reused on another surface.
- Sticker partition:
 - Stickers can be cut into two, three or four pieces (although smaller sizes are not practical). Each piece carries the same message.
 - When you re-record a fragment, the new message is automatically incorporated into all fragments.
 - This feature is useful for creating learning materials, such as association tasks.
- Sticker protection:
 - In aggressive environments or with intensive use, stickers can get scratched or damaged.
 - To protect them, they can be covered with transparent or translucent materials.
 - The LEO accesses the sticker code through an optical system while the sticker remains protected.
 - In addition to listening to the message, you can also record it on the protected sticker.
 - Stickers can peel off on certain materials, so it is advisable to try them out in advance.
- Incorporation of Braille in stickers:
 - Using the same system, braille adhesive labels can be applied to the stickers.
 - Content written in Braille must conform to the size recognized by the reader.
 - This combination of LEO sticker and Braille is useful for including information on plans or maps
 - The braille marking helps locate items on the plan and touching it with the LEO plays the message recorded on the LEO sticker below.

Activities with the LEO voice labelling system:

1. Storytelling:

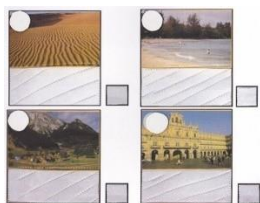
- You can tell stories using stickers.
- While the child listens to the narration, he or she can touch tactile images or follow the braille text.
- To make the task easier:
 - Place the sticker on each page in the same position (for example, top right corner).
 - Leave the pencil in the same place (if the sticker is on the right, place the pencil also on the right of the book).

2. Materials Notebooks:

- Personalize activity booklets.
- Incorporates phrases to guide students in exploration tasks in two-dimensional space.
- Includes identification activities, long sentences to encourage listening attention, and activities with various information/reinforcement stickers.

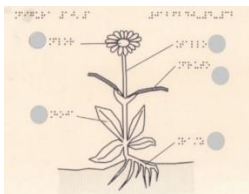
3. Image Locution:

If LEO tags are used, children with visual impairments can perform these tasks autonomously and at the same time as their peers.



4. Recorded voice stickers in embossed sheets:

Normally essential images and diagrams in textbooks are embossed (printed with relief and textures) for blind students. In this case LEO pen stickers can be added to provide additional information.



Sheet made of microcapsule paper.

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