



Older Individuals who are Blind
Technical Assistance Center

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Lesson 19: Using Technology in Everyday Life: Adaptive Options

Introduction

As you have learned, vision loss requires learning new ways to do many things, from telling time to organizing your kitchen and pantry. This series of lessons has covered many useful strategies, like putting a rubber band around a blood pressure pill bottle so you can distinguish it from ulcer medication or pinning socks together before tossing them in the hamper so they'll still be together after laundering.

Computers, smartphones, virtual assistants, and other digital technologies can also improve your independence and quality of life. This lesson will discuss a range of mainstream and adaptive technologies that help people who are blind or have low vision with many daily tasks. Assistive or adaptive technologies, hardware, and software that allow access to computers or touchscreen mobile devices will also be discussed.

Lesson Goals

- Find out how you can use assistive technology in everyday life
- Gain familiarity with mainstream and adaptive technology
- Learn about options for making a computer accessible
- Learn tips for mobile device accessibility
- Learn about smartphone apps that are made specifically for people who are blind or have low vision
- Learn about mainstream products that can increase your independence

Technology is an ever-evolving field, so it is important to keep up with new products and iterations of assistive technology. This lesson can only provide information on a few rapidly changing software and hardware options.

Assistive Technology in Daily Life

Assistive technology can feel like an overwhelming subject, but don't despair—you don't need to learn everything at once! Here are a few

recommendations for how you can use technology to improve your daily life:

- Wake up to the sound or vibration of an accessible alarm clock
- Take the correct medication with the help of a talking prescription bottle, such as [ScripTalk](#), or other devices that can identify your medication and remind you to take it
- Keep up with the world through text-to-speech or magnification software on your computer or cell phone. Try using the existing accessibility features on your computer, like screen readers and screen magnifiers.
- If you are heading out of your home and need directions, try an accessible GPS to go with your mobility cane, or use Google or Apple maps on your smartphone.
- View your bills and other mail with the optical character recognition features available through a KNFB reader or the [Seeing AI](#) app for your smartphone.
- Get help reading labels on canned goods using the free [Seeing AI](#) app or the Aira or Be My Eyes apps for the iPhone to connect to [Seeing AI](#), a network of volunteers. The Aira and Be My Eyes apps use your device's camera to initiate a video session with a volunteer who can look through your phone and help you do tasks like identifying which can of food you want, sort mail, or check for spots on clothing.
- When you want to relax, try using a device like the illuminated Big Button Remote to channel surf. You may also wish to ask your cable provider if they offer voice-controlled remotes or voice menu services. You can also try using an audio description, where a narrator describes a program's action. If you go out to a movie, many movie theaters offer special headsets on request that play an audio description of the movie. Visit [American Council of the Blind](#) for a list of available audio-described shows and movies. Streaming services like Apple, Amazon, and Netflix also offer some audio described movies and programs. Try turning on the secondary audio program (S, on your television to access audio-described programming.

- Use a virtual assistant, such as the Amazon Echo, to set a timer when preparing a meal or to play your favorite music.

Information for the Computer Novice

If you don't regularly use a computer, you may feel like there isn't a point in starting now. What you may not realize is that, with the help of a few pieces of software, computers can give you access to a huge range of information, services, and tasks that might otherwise be more complicated or time-consuming to find or get done. If you cannot access computer training at a vision rehabilitation agency, local libraries or adult education departments may offer classes.

It is important for people who are blind or have low vision to understand the keyboard, so learning to touch type is very useful. Learning good keyboarding skills will significantly reduce your frustration as you use a computer. Large print adhesive labels that have letters and numbers for computer keyboards are available, as are adapted keyboards that have large letters and contrasting colors.

Adaptive Software for Standard PC or Mac Computers

Built-In Color and Contrast Options: Windows

If you only need a bit of help to use a computer, try this tip on a Windows computer: Press the Windows key and the letter U at the same time. This will summon the Microsoft Ease of Access Center, where you can adjust your computer's color and contrast options.

Built-In Magnification Options: Windows

Consider turning on the Windows Magnifier, which can also be found in the Ease of Access Center (see above). Windows Magnifier offers three different ways to enlarge the screen. You can press the Windows + key combination to increase magnification and Windows - (minus) key to reduce it. You can also use Magnifier's "Zoom" control or the Windows + to magnify the contents displayed on the screen up to 16 times.

Whenever you start Magnifier, the program's toolbar appears briefly, then gets out of your way. You can summon it again by clicking the magnifying glass icon on your screen or the Magnifier icon on your computer's taskbar.

Accessibility Options: Apple

To find the accessibility options on Apple computers, press Command + Option + F5. This command will bring up the complete list of accessibility options for OS X, including color, contrast, magnification, and VoiceOver options.

Web Browsing with Magnification

If you browse the Internet using a screen magnifier, there are a few settings that can increase your enjoyment and productivity online. In most browsers, the F11 key will toggle you from normal view to full-screen. In full-screen view, all menu bars and other icons that can be distracting are hidden. Also, in the View menu of most browsers, there is a "zoom" button that allows you to enlarge the webpage you're viewing. If you are using a mouse, the Control and the scroll wheel on the mouse can be shrunk and enlarged in Internet Explorer.

Screen Readers: Windows

You can have your Windows PC read text, menus, and other controls aloud using the Narrator screen reader. To launch Narrator, press Control + the Windows key + the Enter key at the same time.

Another free screen reader option is [NV Access](#), which stands for nonvisual desktop access. This program is available as a free download.

Browsing the Web with a Screen Reader

Just as print documents can be structured with headings, bulleted lists, and text blocks, websites have structure, and screen readers make use of this. Unlike print documents, webpages also have interactive content. There are many types of elements on a webpage, like headings, lists, graphics, and links. The most basic way to navigate a web page while using a screen reader is with the up and down arrow keys. This moves the focus to each element on the page in order, including non-interactive text.

The Tab key moves the computer's focus between interactive elements, like links and buttons, but it usually skips over bulk text elements. A good strategy for reading a new webpage is to jump through the headings to get a feel for its structure. On a webpage, pressing the H key by itself will move

to the next heading. You can also navigate to the next link by pressing the K key. Holding Shift will move you backward. You can activate a link by pressing the Spacebar on the keyboard. This will either take you to a new page or a different part of your current page.

With these basic commands, you can read a webpage quite effectively. A good way to navigate a webpage is to scan the page by heading and then use the up and down arrow keys to locate topics of interest.

Each screen reader has specialized commands that you will need to learn. Suppose you are learning to use a screen reader for the first time. In that case, it is a good idea to seek assistive technology training because screen reader software can be challenging to navigate and learn without some instruction or mentoring. Contact the local, state, or private agencies that provide vision rehabilitation training and ask about screen reader software training.

Using Mobile Technology: Cell Phones, Smartphones, and Tablets

Smartphones are incredibly helpful tools for people who are blind or have low vision. These devices allow you to make phone calls and identify currency, objects, or items, find the closest bus stop and get voiced directions to its location and identify colors and money when out shopping. As with desktop and laptop computers, screen readers and screen magnifiers can help you access mobile devices.

Tips for Using a Touch Screen Mobile Device

When sighted people use a touch screen smartphone or tablet, they tap icons or slide a finger across the display to make things happen. But what if you cannot see the icons clearly enough, or not at all?

Both iPhones and Android smartphones include two built-in accessibility features: a screen magnifier and a touch screen reader. The built-in smartphone magnifiers magnify the screen and use large fonts, enhanced contrast, alternate color schemes, and other techniques to make it easier to see.

The built-in touch screen readers use human-sounding, synthesized voices to read and review the screen, much like Narrator for Windows or VoiceOver for Mac. However, unlike those screen readers, which use

keyboard commands to navigate a page or site, smartphone screen readers use special touch gestures to get the job done. It might mean double-tapping rather than a single tap to access an app.

For iPhone, iPad, and the iPod touch, the screen reader, is called VoiceOver for iOS. On Android phones, the touch screen reader is called TalkBack. Windows touch screen tablets can also be accessed using magnification and the Narrator screen reader. Below are some Apple-specific directions, but most of these work the same for Android devices.

Mobile Device Screen Readers

Regardless of the brand or style of mobile device, a common feature is a smooth glass display, called a touchscreen, that responds to tactile input. An on screen keyboard is another common way to enter or edit text on mobile devices. "VoiceOver" and "text-to-speech" are terms for software programs that convert text displayed on the screen of a mobile device to audio output, making it possible for people with visual or learning impairments to access these devices.

The VoiceOver Screen Reader for Apple Mobile Devices

The easiest way to turn on VoiceOver is to ask the Siri digital assistant to do it for you. Siri can perform many tasks, like telling the time, making phone calls, sending a text, and opening apps. Try using Siri to find out what is possible with just the sound of your voice.

Depending on your iPhone, to use VoiceOver, you might need to press and hold the Home button, which is the round button beneath the screen on your device. When you hear the beep, say, "Turn on VoiceOver." For iPhones without a home button, press the lock button on the right side of the phone and say, "Turn on VoiceOver." You can also turn VoiceOver off by instructing Siri, "Turn VoiceOver off."

With VoiceOver turned on, touch the display in different places to hear the names of icons or text snippets.

To effectively use the Apple VoiceOver screen reader on the iPhone or iPad, you must learn how to move around or navigate the text or apps installed on your device. There is a built-in tutorial, and you can also access [VOStarter](#) to practice navigating a smartphone.

iOS Gestures

Gestures are the movements you make with your fingertips on the surface of a mobile device's touch screen to control what the device does and learn about what is displayed on the screen. Below are descriptions of some of the most commonly used gestures for the Apple mobile operating system called "iOS."

Swipe Gesture

To swipe, touch the screen with your fingertip or fingertips and smoothly swipe either up, down, left, or right. Keep your fingers slightly separated when swiping with multiple fingers. Try exploring what is on the screen by starting toward the upper left-hand corner, just as you would if reading a page of text. Use a one-finger swipe to the right to listen to all the apps or other items on the screen.

Additional Swipe Gestures

- One-finger swipe right or left: selects the next or previous item that gains focus
- One-finger swipe up or down: gives choices depending on the rotor setting (see below)
- Two-finger swipe up: reads all content, from the top of the screen to the end of the page
- Two-finger swipe down: reads all content, from the current position to the end of the page
- Three-finger swipe up: moves down the page
- Three-finger swipe down: moves up the page
- Three-finger swipe left: moves forward one page
- Three-finger swipe right: moves back one page
- Tap Gesture: this gesture is a quick tap with one or more fingers. Again, when multiple fingers are required, be sure to separate your fingers slightly. You will also need to make the tap quickly to keep this gesture differentiated from the tap-and-hold gesture covered below.

Here are some gestures that use a tap:

- One-finger double-tap: activates the item that has the focus
- Two-finger single tap: starts or stops audio or the current item being read aloud

- Two-finger double-tap: when the focus is in an edit box, starts dictation feature; another two-finger double-tap ends the dictation feature
- Three-finger single tap: tells what is currently visible on the screen and its position
- Three-finger double-tap: turns VoiceOver off or on
- Three-finger triple-tap: turns Screen Curtain off or on
- Four-finger tap at the top of the screen: focus goes to the first element on the page
- Four-finger tap at the bottom of the screen: focus goes to the last item on the screen
- Four-finger double-tap: turns on or off VoiceOver help

Tap-and-Hold Gesture

This gesture requires that you not remove your finger(s) at the end of the final tap. This gesture is often used when you want to rename a tab, button, or app. A two-finger double tap-and-hold brings up an edit box where you can type a new name.

Scrub Gesture

Place two fingers, slightly separated, on the screen, and draw the letter "Z." This gesture allows you to dismiss a notification or go back one screen.

Flick Gesture

The flick gesture is typically used when you are given choices from a list or a spin selector that contains days or numbers. The flick is done as if you are using your finger to flick something off the device's screen.

iOS Rotor

The rotor contains a list of choices, depending on the app you are using. To use the rotor, make sure VoiceOver is enabled, then place two fingers on the screen and rotate them as if turning a dial. Lift your fingers when the feature you desire is announced.

Hints

When using gestures to navigate mobile devices, you may hear VoiceOver speak additional information or choices. Listen to the hint to learn the gesture that is needed to complete or start a task.

Practice Mode

Another great way to learn VoiceOver gestures is by double-tapping the screen with all four fingers. This summons VoiceOver's Practice Mode. The iPhone or iPad will now speak the function of any gesture performed. When you're done practicing, press the Home button once to exit Practice Mode.

Using the Onscreen Keyboard

When you double-tap a text-entry field, the iPhone's onscreen keyboard appears on the bottom half of the screen. You can explore the keyboard using one of three methods:

- Lightly touch the screen in various locations. This is known as exploring by touch.
- Slide a finger across the bottom half of the screen until the various keyboard characters are spoken.
- Swipe across the onscreen keyboard using either left or right one-finger swipes.

Notice that the letters are in the same locations as on most standard hardware keyboards. When you find the key you want, double-tap anywhere on the screen—it's that simple.

At first, typing on a touch screen virtual keyboard can seem daunting. Keep practicing, though. Eventually, things will click, and you will be ready for the iPhone's touch-typing mode. Using the touch-typing mode, all you need to do is find the key you want to enter. The simple act of lifting your finger causes the character to be entered into an email or text. Of course, you can also tap the dictate button to dictate a message or email.

Getting Help with iOS and Android Accessibility

Apple provides support for Mac computers and users of iPhone and iPad accessibility products. You can reach tech support via email at accessibility@apple.com. In the US, you can also reach them by phone

between 8 a.m. and 8 p.m. by calling (877)204-3930. For Android support, visit [Android Accessibility](#).

Virtual Assistants

Virtual assistants, like the Amazon Echo and the Google Assistant, are very popular. These easy-to-use, voice-activated devices can answer questions and perform skills, like telling the time and weather in a specific location, playing music and books, playing games like trivia, setting alarms and timers, and making lists.

Additional Resources

AccessWorld, a monthly online publication from the American Foundation for the Blind, holds a wealth of information about access technology, including information about smartphones, household appliances, online gaming, navigation and identification apps, and more. Visit them at [AccessWorld](#).

AFB *AccessWorld* also offers articles on using technology in everyday life. It covers social media, online shopping, and banking, using technology for reading, entertainment, prescription management, accessible identification systems, selecting home appliances, and using GPS.

[Hadley](#) also offers many podcasts and courses on using assistive technology.

Accessible Computers

Inexpensive Computers

Suppose your finances do not allow you to buy a new computer. In that case, you may be able to buy a refurbished Windows desktop or laptop computer that comes preconfigured with a screen reader, screen magnification software, and other essential software. These affordable, accessible computers are provided at cost by Texas-based [Computers for the Blind](#) is a volunteer organization that has provided over 6,000 accessible computers to people who are blind or have low vision across the US. They can be reached by email at info@computersfortheblind.net or by phone at (214)340-6328.

Summary

Technology is always changing, so it is important to keep up with changes and new options for accessibility. More and more mainstream, affordable options are becoming available. Check with your local agency for the blind or local independent living or vision rehabilitation agency to find out more about current technology and training.

Suggested Activities

Make a list of the technology you currently have and the tasks you can use your technology to perform.

If you have a smartphone, try the built-in tutorial. On Apple devices, this is called VOStarter. Practice navigating the apps and screen.

If you are interested in building your technology skills, contact your local agency for the blind, an adult education center, or your library to determine what training is available in your area.

Resources

- [ScripTalk](#)
- [American Council of the Blind](#)
- [NV Access](#)
- [Apple Help Desk](#)
- [Android Accessibility](#)
- [Hadley](#)
- [AccessWorld](#)
- [Seeing AI](#)

High contrast computer keyboards/large print keyboard stickers, accessible clocks, medication reminders, large button remotes, etc. can be found at:

- [MaxiAids](#)
- [LS&S Products](#)
- [Independent Living Aids](#)
- [ScripTalk](#)