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# Windows Access for Blind and Low Vision Students

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JAWS

Freedom Scientific, a member of Vispero.

(800) 444-4443

Blind and Low Vision Division

17757 US Hwy 19th N #560

Clearwater, FL 33764

*JAWS training materials are available on the Freedom Scientific web site.*

[*Freedom Scientific*](http://www.freedomscientific.com/)

Always have the current JAWS version installed on your computer and keep it regularly updated. Necessary to remain current with updates to Google Workspace and Microsoft 365. This manual primarily focuses the desktop keystrokes, the JAWS Keystrokes file provides documentation on laptop keystrokes.

## Check First, Do the Function Keys Actually Work as Function Keys?

On most new computers the Function Keys are not the default. The Media Keys are the default. Try entering a keystroke such as Alt+F4 or any JAWS keystroke, if it does not work then the Media Keys are the default. Hopefully, your computer has a Function Lock key. If it does not, then it is necessary to change this in the BIOS so that the Function keys are the default. It is possible to hold down the Function key, in addition JAWS key, but that is so awkward.

## Is the Braille Set Correctly?

Ask the student to write a basic sentence on the Braille display in Microsoft Word. “I went to the store.” Then ask if the contractions and punctuations are correct. If not, go into the Setting Center and correct this. JAWS key+F2, then press S twice, then Enter. Press Tab once then B, then Right Arrow to Open. Press Down Arrow to General, then use F6 to navigate.

# JAWS Resources

* JAWS can be downloaded, the 40-minute version, at the following site: <https://support.freedomscientific.com/Downloads/JAWS>
* JAWS Keystrokes. Go to the following site and print out the JAWS keystrokes. <https://support.freedomscientific.com/Content/Documents/Manuals/JAWS/Keystrokes.pdf>
* Training materials from JAWS: <https://support.freedomscientific.com/Services/TrainingAndCertification/TrainingDownloads>  
  These are all auditory files.
* Training materials from Rosa Mauer currently on the Perkins eLearning site: <https://www.pathstoliteracy.org/learning-jaws-lessons-and-review/> They are excellent and frequently used, but they are not current. Rosa has been retired for some time.
* Perkins eLearning: <https://www.perkins.org/resource/lesson-plans-jaws-and-ios/>
* CA School for the Blind Assistive Tech: <https://www.csb-cde.ca.gov/instruction/assistivetech/howto.aspx>
* Microsoft Windows Keystrokes: <https://support.microsoft.com/en-us/help/12445/windows-keyboard-shortcuts>
* Freedom Scientific Training Site: [Freedom Scientific Surf's Up](https://www.freedomscientific.com/Training/Surfs-Up/_Surfs_Up_Start_Here.htm)

## Training Materials included with the JAWS Software

* Have JAWS running and the focus on the JAWS Window
* Enter Alt+H to go to Help
* Down arrow to JAWS Help Topics
* Use F6 to move to the open book that you have selected

# Class Objectives

1. \_\_\_\_ Able to use an accessible keyboarding program.
2. \_\_\_\_ Able to demonstrate basic JAWS concepts/commands.
3. \_\_\_\_ Able to demonstrate advanced JAWS keyboard commands.
4. \_\_\_\_ Able to demonstrate basic Windows concepts/commands.
5. \_\_\_\_ Able to demonstrate basic Microsoft Word keystrokes.
6. \_\_\_\_ Able to configure Windows for low vision students.
7. \_\_\_\_ Able to configure and use screen enlargement programs.
8. \_\_\_\_ Able to demonstrate an understanding of OCR programs.
9. \_\_\_\_ Able to format documents correctly with JAWS.
10. \_\_\_\_ Able to use the spelling checker with JAWS.
11. \_\_\_\_ Able to access Wikipedia with JAWS.
12. \_\_\_\_ Able to access a dictionary with JAWS.
13. \_\_\_\_ Able to access information on the web on a basic level with JAWS.
14. \_\_\_\_ Able to access information on the web on an advanced level with JAWS.
15. \_\_\_\_ Able to create PowerPoint assignments with JAWS.

# Keyboarding

Accessible keyboarding programs:

* Talking Typer
* Talking Typer Teacher
* Typio
* Typeability
* TypingClub

1. QWERTY: Specify a standard 104 keyboard; other keyboards may come with extra keys. Obtain a keyboard where the keys are well defined.

2. Alt keys: Located on either side of the spacebar

3. Control keys: Located to the outside of the Alt keys

4. ESC & Function keys one through twelve

5. Six keys, called “Six Pack”

Upper row: Insert, Home, Page Up

Bottom Row: Delete, End, Page Down

6. Cursor Cross

Top row: Up arrow

Bottom row: Left arrow, down arrow, right arrow

7. Backslash and Forward slash

These keys are on different locations on different keyboards. Numeric Keypad

JAWS uses the numeric keypad as a speech navigation area. For example, Insert+8 will read the current line. The Num Key needs to be off.

Windows Key

The Windows key will activate the Start button. Use Shift+F10 for Context Sensitive Menu. This is how the right mouse button is accessed.

Consider teaching the one-handing keyboarding option first that is available with TypingClub. If this is not functional consider purchasing a Matias 508 keyboard for students who only have effective use of one hand. [Matias 508 Keyboard](http://www.508keyboard.com/)

# JAWS Basics

JAWS can be accessed with **Insert+J**. It can be turned off with Insert+F4. Sighted users should always turn it off this way, rather than just muting the speaker or unchecking the “Run JAWS First” option. Blind individuals find it beyond frustrating when sighted individuals mute the speaker.

Options

Basics: Some of the features are the Tutor Messages, Access Key Messages, and the Virtual Viewer. The Virtual Viewer will display all of the help messages on the screen for review purposes. JAWS can be run from the System Tray.

Voices: Individual or Global adjustments can be made. Note that adjustments can be made for specific applications. This will be demonstrated later in this manual when no punctuation is set for the Internet and most punctuation is set for Word.

Braille: Used to configure your Braille display

JAWS speech can be increased or slowed temporarily; the keystroke is Control+Alt+PageUp or Control+Alt+PageDown. It can also be increased or slowed down during a SayAll command (Insert+Down Arrow) with the PageUp or PageDown command. The desired speed can be permanently set by going to Options, then to Basics.

Virtual Viewer

Practice using the Virtual Viewer in a Microsoft Word document. Press Insert+F1 to open the Virtual Viewer. The Help Messages will appear on the screen. Inform blind students of this, so they can turn it off if they want to.

Voices

The PC cursor and the JAWS cursor should always have different voices. This information tells the user which cursor is currently active.

Configuration Settings

1. Have Microsoft Word open and press Insert+F2.
2. Select the Settings Center.
3. Review the following options: User Options, Format Options, & Braille Options. The Braille translator should be turned on when JAWS is first started after a new install or upgrade. If it is not turned on during setup it can always be turned on later by using the Settings Center.

Setting Center, Keyboard Manager

Insert+F2 provides the student with all of the keystrokes. For example, hit the Windows key and keyboard in Calculator. Press Insert+F2 and go to the Keyboard Manager for a list of keystrokes in the Calculator application. Try this with Microsoft Word and with Chrome.

OCR in JAWS

JAWS supports the Pearl camera and flatbed scanners. To recognize an image, use the layered keystroke: Insert+Spacebar, O, A. To read more about how this works open JAWS, Utilities, then OCR options, then Help.

Running JAWS from the System Tray

High school students sometimes check “Run JAWS from System Tray.” When JAWS is run from the System Tray it does not appear as an option when the user Alt+Tabs between open applications such as Word and Chrome. It is accessed with Insert+F11.

Tutor Messages & Access Key Messages

Some users find these options too chatty as they become more proficient. Press Insert+J, go to Options, and then go to Basics.

Activity 1

Practice using the JAWS features that were discussed under Options.

# JAWS Frequently Used Commands

## **Insert+T**

This command will say the title of the current Window application or file. It should be introduced early in instruction. It is generally considered the “Where am I?” command.

### Insert+F1

This command provides screen sensitive help. If you are in a Microsoft Word file it will tell you that this is the “Main Document Window.” The Virtual Viewer should be checked.

### Insert+W

This command gives the user information about common Windows commands.

### Insert+H

This command gives the user information about JAWS hotkeys.

### Insert+F2

This command opens a dialog box with a list of the managers relevant to the active application.

### Insert+1 (Regular keyboard 1)

Keyboard help. Enter Insert+1 again to turn it off.

### Insert+2 (Regular keyboard 2)

Verbosity can be selected from none, characters, words, and both characters and words.

Activity 2

Open Microsoft Word or Chrome. JAWS currently work best with the Chrome browser. Practice the commands listed above.

How to shut down the computer. Close all windows, then enter either Windows+D or Window+M. Then enter Alt+F4. You will be in a combo list box, use the up or down arrow keys to cycle to Shutdown if that is not the current option. Enter.

# JAWS Training Materials

JAWS Training

1. Open JAWS
2. Go to Help
3. Review the Training Materials under Help.
4. ResearchIt is a very useful feature in JAWS. It uses Layered Keystrokes. The layered keystroke for Research It is Insert+Space, then the letter R.
5. Go to JAWS Help and see what is new in the current JAWS version.

Locate Information on JAWS on the Web.

Go to Google or Edge and enter “JAWS Keystrokes.”

Review the sources that are currently available on the web and go to the Freedom Scientific site. The “Quick Keys” listed on this page are helpful. Bookmark this page.

Installing JAWS

Most individuals install JAWS using the Typical option and install the Braille display later. If you are using a Braille display other than a Freedom Scientific Braille display you may need to install drivers.

JAWS Questions

1. What scripts does JAWS come with? What are scripts? Go to Insert+F2, then go to Keyboard Manager.
2. Which Braille displays does it work with? How easily does JAWS work with specific Braille displays? No configuration is necessary with the Focus 40 Freedom Scientific display.

*Concepts*

1. Script files

Script files are configuration files in JAWS that enable the program to work with different applications such as Microsoft Word or Chrome. These files load automatically with the program. Determine if a script file has been written for a specific program before purchasing it. If a script file has not been written for the program that you are considering, then that program is probably not accessible. There are some individuals and companies that sell JAWS scripts, such as the JAWS scripts for Dragon Dictate.

1. Different cursors: JAWS cursor, PC cursor, Braille cursor, Virtual cursor, etc.
2. Keyboard Conflicts

Two programs will always be running at the same, the application and speech/braille access – JAWS. The pass-through key for keyboard conflicts is Insert+3.

4. The teacher should consider purchasing equipment that is easy to install and use when they are first learning access devices.

1. Teach Basic Screen Review Commands

The first commands to teach are those that review the screen by character, word, and line.

1. Windows Access

For efficient, competent access it is necessary to learn a combination of Windows commands, application commands, and screen reader commands. The same is true for any other operating system.

Using this Document

To limit keyboarding, unless specific materials are required for cutting, pasting, and formatting, keyboard only one or two lines of text per activity.

Adobe Acrobat Reader

Install a latest version of Adobe Acrobat Reader. Adobe Acrobat Reader is a free download. <https://www.adobe.com/acrobat/pdf-reader.html>

# Windows Overview

Start with the Windows Key

The Windows key is used to activate the Start Menu. Applications that you use frequently will appear in the Start Menu. Use Incremental search, keyboard the first few letters of the app you are looking for.

Activity 3

Using keystrokes only, demonstrate the following skills with the Start Menu:

\_\_\_\_\_ Ability to open Chrome or Edge

\_\_\_\_\_ Ability to access My Documents

\_\_\_\_\_ Ability to access My Recent Documents

\_\_\_\_\_ Microsoft Word

\_\_\_\_\_ Control Panel

\_\_\_\_\_ Shut Down

Windows Tips

1. Go to View and select either Details or Lists to look at folders/files.
2. Navigate through Windows Explorer with a combination of the tab key and F6.
3. Note that adding the shift key to the tab key or F6 or most any other keystroke will move backward. Sometimes this will be less keystrokes.

# Windows Commands

Moving Between Windows Applications

Alt+Tab: Forward

Shift+Alt+Tab: Backward

Windows key: Activates Start button

Menus

Alt or F10: Activates menu bar

Alt & Letter: Select option

Alt+Spacebar: Open control menu for application menu

Alt+Hyphen: Open control menu for document window

Right Click: Context menu (Shift+F10 for a keyboard without a right click key)

Dialog Boxes

Enter: Carry out command

Spacebar: Select an item

Alt+Down Arrow: Open or close a selected list

Esc: Cancel dialog box

Ctrl+Tab: Moves between tabs in multi-tab dialog boxes

Navigating

Arrow keys: Between menu, character, or items

Tab: Next dialog item

Shift+Tab: Previous dialog item

F6: Navigates among Window Panes

# Microsoft Word Keystrokes

Google “Microsoft Word Keystrokes” if you are looking for a keystroke not listed here.

Bold: Ctrl+B

Italic: Ctrl+I

Underline: Ctrl+U

Center: Ctrl+E

Left align: Ctrl+L

Right align: Ctrl+R

Cut: Ctrl+X

Copy: Ctrl+C

Paste: Ctrl+V

Single Space: Ctrl+1

Double Space: Ctrl+2

Save: Ctrl+S

Undo last change: Ctrl+Z

Print: Ctrl+P

Open Font Preferences Window: Ctrl+D

Indent the Paragraph: Ctrl+M

Create a Hanging Indent: Ctrl+T

Close Currently Opened Document: Ctrl+W

Create a Bullet Point: Ctrl+Shift+L

Opens Find: F5

Heading 1: Ctrl+Alt+1

Heading 2: Ctrl+Alt+2

Heading 3: Ctrl+Alt+3

Frequently it is necessary to navigate through the Microsoft Ribbon using the Virtual Toolbar, but sometimes it is easier to learn the keystrokes.

In Microsoft Word with JAWS running hit Insert+V for Verbosity. Style changes need to be on when a student is formatting documents.

# Microsoft Accessibility Options

Large Print Options in Microsoft Word

1. Select Zoom (located under View) and an appropriate magnification. Students sometimes select a larger magnification than they need. After the student has used a magnification setting for a period of time, try making the magnification smaller*.*
2. Go to View, Toolbars, Customize, & Options. Select Large Icons.

Windows Enlargement Options

1. Click on the Start Button.
2. Keyboard “Ease of Access”
3. Review the available options for Vision, you may wish to explore the other options.
4. Select a large mouse pointer
5. Select Display.
6. Click on High Contrast and choose a Theme
7. Select a low vision display of your choice
8. The shortcut key is Alt+Left/Shift+Print Screen. This command is a toggle.

Windows Narrator

Windows Narrator continues to improve. It currently works well with Microsoft Edge and Microsoft Office. Microsoft is stating that they would like to make Windows Narrator your default screenreader. The CapsLock key is the Narrator key.

The lessons in this manual, with modifications, can be used to teach Windows Narrator.

**Windows Narrator Commands**

Start Narrator: Windows+Control+Enter (toggle)

Stop Narrator: Windows+Escape

Open Narrator Settings: Windows+Control+N

Start Reading: CapsLock+M

CapsLock+Right Arrow: Next Item

CapsLock+Left Arrow: Previous Item

CapsLock+Enter: Primary Action

CapsLock+F1: Narrator Commands

CapsLock+Spacebar: Start or exit scan mode

[Microsoft Support 10 Narrator Commands](https://support.microsoft.com/en-us/help/22806/windows-10-narrator-keyboard-commands-touch-gestures) [Microsoft Accessibility](https://www.microsoft.com/en-us/accessibility/default.aspx)

Windows Magnifier

Windows has an excellent magnifier.

* Turn on Magnifier: Windows+ (plus) +
* Turn off Magnifier: Windows+Esc
* Zoom In: Windows+ (plus) +
* Zoom Out: Windows+ (minus) –
* Open Magnifier Settings: Windows+Ctrl+M

**Open Microsoft Word and enter the following text using the Windows Magnifier and Windows Narrator. Save this text, we will be using it with JAWS later.**

Bull Run was the first battle of the Civil War. The Union almost won this battle. The Civil War could have been over right there if it had not been for Stonewall Jackson.

# File Management

Saving Files

* Enter F12
* Keyboard in the name of the file
* Shift+tab several times until JAWS says “Tree View”
* Navigate to where you want to save the file.
* Alt+S.

Opening & Deleting Files

* Enter Alt+F and go to Open.
* Navigate to the file using the tab and arrow keys. Enter the tab key twice to go to recent files.

File Copying with Windows Explorer

1. This example demonstrates moving files to/from a USB drive. Have JAWS running.
2. Use Windows+E to open Windows Explorer. The files should be displayed either the Details or List Folder View. If this is not the case enter Alt+V and change it.
3. Tab from Tree View to List View.
4. Stay in the List View. **Use only the spacebar, enter key, backspace key, F6 key, and the up and down arrow keys.**
5. When you are on the file you want enter Control+C to copy.
6. When you are on the location where you want to paste the file enter Control+V.

# Writing Activities & JAWS Screen Review

* Control+Z removes changes
* Control+Y places the changes back.

Refer to the information that you bookmarked on JAWS Keystrokes for screen reading commands. Screen Review Commands, also Screen Refresh: Insert+Esc if JAWS is not working correctly & Insert+2, which toggles between None, Characters, and Words

Insert+8: Read current line

Insert+4: Previous word

Insert+5: Current word

Insert+5: Twice, spell current word

Insert+6: Next word

Insert+2: Read all from the cursor location

Some of these commands can be duplicated with the Insert key and arrow keys.

Laptop Commands

CapsLock+U, I, O: Previous sentence, Current Sentence, Next Sentence

CapsLock+J, K, L: Previous word, Current Word, Next Word

CapsLock+M, Comma, Period: Previous Character, Current Character, Next Character

Press CapsLock+K twice to have the current word spelled.

Activity 4

Dear Pat,

It was good to hear from you again. Perhaps we could meet at the Drake Relays and then after that visit the Amana Colonies. Fall is the best time for a visit to Iowa. I hope we do not have a tough winter this year. I should go now. I need to start working on my English report.

Sincerely,

Your Name

The sequence of keystrokes for saving in Word:

* F12
* Keyboard in the name of the file
* Shift+tab several times until JAWS says “Tree View”
* Navigate to where you want to save the file.
* Alt+S.

Activity 5

1. Read information by character, word, and line. Using either the laptop or desktop keystrokes.
2. Spell check
3. Using Tab to move forward through items and Shift/Tab to move back
4. Dialog boxes & efficient menu use
5. Combo list box
6. Save (Control+S) and Save As

Activity 6

Dear Pat,

It was really good to hear from you again. I just can’t stop thinking about the Amana Colonies. Their bratwurst is fantastic. Of course, it doesn’t do much for my waistline. Did you know that they actually make dandelion wine there, really strange stuff? But of course their apple pie is to die for. Talk to you later.

Sincerely,

Your Name

Activity 7

Dear Pat,

Well, I am still talking about the Amana Colonies. The Amana Colonies have a furniture shop and a woolen mill. But I must admit that my main reason for going to the Amana Colonies is the food. My favorites are the sauerbraten, wiener schnitzel, and bratwurst. I shouldn’t, but I also really love the pastries. I think I am going to visit Gettysburg next. Talk to you later.

Sincerely,

Your Name

Screen Review Commands

Insert+8: Read current line

Insert+4: Previous word

Insert+5: Current word

Insert+5: Twice, spell current word

Insert+6: Next word

Insert+2: Read all from cursor

Laptop

CapsLock+U, I, O: Previous sentence, Current Sentence, Next Sentence

CapsLock+J, K, L: Previous word, Current Word, Next Word

CapsLock+M, Comma, Period: Previous Character, Current Character, Next Character

Press CapsLock+K twice to have the current word spelled.

Checklist Activity through Activity 7

\_\_\_\_ Able to review by character

\_\_\_\_ Able to review by word

\_\_\_\_ Able to review by line

\_\_\_\_ Able to save your work in a specified folder

\_\_\_\_ Able to move back & forth through the dialog options

\_\_\_\_ Able to read the Default Dialog Box Button

\_\_\_\_ Able to identify the Dialog Option Hot Keys

\_\_\_\_ Able identify hot key of the item with focus

\_\_\_\_ Able to read Dialog Box Options

# Inserting & Deleting

Activity 8

This information will be entered in the list style format. The numbers will be entered automatically after the first number is entered, but they will not be spoken. Good reason to be using a Braille display. Students need to be aware of this, sometimes they enter double numbers.

Dear Pat,

1. Well, I am finally at Bull Run.
2. I am aware that you are interested in Pickett’s Charge, but that happened on the fourth day.
3. I am most interested in what happened on the first, second, and fifth day.
4. For example there is the story of the First Minnesota brigade.
5. They were ordered by General Hancock to charge a Confederate regiment under General Wilcox just as it was about to break through Seminary Ridge.
6. The First Minnesota delayed the Confederate advance long enough for reinforcements to be brought up. They suffered 82% casualties, the highest of any Union brigade in the Civil War.

Sincerely, Your Name

**Changes to Activity 8: Command for tracking screen changes: Insert+5**

**Insert+2: Switching between Characters, Words & Both Characters and Words**

Make the following changes to the document. Move through the document word by word with Control+Left Arrow/Right Arrow. Highlight the information by holding the shift key down. Use Insert+5 for Say Color. For example enter Ctrl/Shift+Left Arrow to highlight a word to the left. Then press the Delete key or begin typing. To delete a single character to the right just press the Delete key. The Delete key deletes a character to the right; the Backspace key deletes a character to the left. *Deselect highlighted info with the arrow keys.*

1. Change “Bull Run” to “Gettysburg.”
2. Change “fourth” to “third.”
3. Delete both commas in this sentence. Delete the words “second and fifth”
4. Change the word “brigade” to “regiment.”
5. Change the word “regiment” to “brigade” and change “Seminary” to “Cemetery.”
6. Change “brigade” to “regiment.”

Activity 9

Dear Pat,

1. Your letter brought up many issues concerning the second day of battle at Gettysburg.
2. There is much discussion about what happened after the Confederates under Lt. Gen. Richard Ewell pushed the Federal II Corps off Seminary Ridge.
3. The Federal troops were moving through Gettysburg in great disarray.
4. The Union turned to make a stand on the Round Tops. On the third day this was the site of Pickett’s charge.
5. Gen. Lee told Lt. Gen. Richard Ewell that he needed to press those people to secure possession of the heights immediately.

Lt. Gen. Ewell failed to attack and some individuals state that this omission was partially responsible for the Confederate defeat at Gettysburg.

Sincerely,

Your Name

Moving Around & Tracking Changes

Students who have the skills listed below are very proficient in Microsoft Word and on the Internet.

1. PC Cursor: Number Pad Plus
2. JAWS Cursor: Number Pad Minus
3. Route PC Cursor to JAWS cursor: Insert+Number Pad Plus
4. Route JAWS Cursor to PC cursor: Insert+Number Pad Minus
5. It is possible to tether the JAWS cursor to the PC cursor. Control+Insert+Minus
6. Say Selected Text: Insert+Shift+Down Arrow
7. Screen refresh: Insert+Esc
8. Switch between Characters, Word, and Characters and Words: Insert+2

Practice with the JAWS cursor and the PC cursor. Use the JAWS cursor. When a change needs to be made, route the PC cursor to the JAWS cursor. On some applications you may want to tether the JAWS cursor to the PC cursor. Control+Insert+Minus

Practice deselecting information you do not want to change with the arrow keys. One problem that occurs is when individuals highlight information, make format changes, and then press enter with text selected. The text is deleted. Always press an arrow key to deselect text after making format changes. Use Insert+Shift+Down Arrow to say selected text.

**Changes to Activity 9**

Read through the document with the JAWS cursor. When a change needs to be made, route the PC cursor to the JAWS cursor. Use Control+Shift+Arrow to select information.

1. Change “second” to “first”
2. Change “Richard Ewell” to “A.P. Hill”
3. Change “moving” to “retreating”
4. Change “Round Tops” to “Cemetery Ridge”
5. Change “immediately” to “Do this, if possible.”

**Checklist through Activity 9**

\_\_\_\_\_ Use the shift key to select text a character at a time

\_\_\_\_\_ Use the Control/Shift option to select text a word at a time

\_\_\_\_\_ Switching between the JAWS & PC Cursor

\_\_\_\_\_ Cursor joining

# Spelling Checker

1. F7 starts the spelling checker. The Insert+5 command can also be used, pressed twice, to spell the word.
2. Enter the Tab key to go to the list of suggested choices. The user can press <Enter> at this spot to change the word. Press Shift/Tab to move the focus back to context.
3. Press the accelerator keys only in Office 2013 or later.
4. “I” ignores the current option.
5. “G” ignores all of the same option.
6. “A” adds the word to the dictionary.
7. “C” changes the word.
8. “L” changes all of the same words.
9. JAWSKey+C will read the misspelled word in context.

Activity 10

Dear Pat,

1. I am glad that you are finally interested in the second day.
2. Many individuals have been fascinated with the actions on Little Round Top and Colonel Joshua Chamberlain.
3. For his actions on Little Round Top Joshua Chamberlain would earn the Medal of Honor.
4. His regiment, the 20th Maine, held the absolute left of the Union line.
5. Confederate forces attacked his regiment at least four times.
6. When the last attack started, the 20th Maine was out of ammunition.
7. Joshua Chamberlain ordered his troops to fix bayonets and charge.

Sincerely,

Your Name

**Make the Following Changes to the Document**

Use the Control+Shift+Arrow Keys to highlight the information and then the keystrokes listed above to format it.

1. Boldface “**second day”**
2. Underline “Little Round Top”
3. Italicize “*Medal of Honor”*
4. Boldface “**absolute left of the Union line.**”
5. Italicize “*at least four times*”
6. Underline “was out of ammunition.”
7. Boldface “**to fix bayonets and charge.**”

The Alt+Delete is helpful. This command will read the location of the cursor, relevant to the ruler, in inches.

Control+2 will double-space this document. To double-space this document after it has been written enter Control+A, then Control+2.

Cutting, Copying, & Pasting

1. Select the text with the Shift+Control+arrow keys.
2. Cut the text by entering Ctrl+X.
3. Copy the text with a Ctrl+C.
4. Alt+Tab to switch to another open document.
5. Ctrl+V for paste.

Routing or Tethering the Cursor

1. PC Cursor: Number Pad Plus
2. JAWS Cursor: Number Pad Minus
3. Route PC Cursor to JAWS cursor: Insert+Number Pad Plus
4. Route JAWS Cursor to PC cursor: Insert+Number Pad Minus
5. Tether JAWS to PC: Control+Insert+Num Pad Minus
6. Skipping through text: During a SayAll (Insert+Down Arrow) the Right Shift key will skip to the next unit; the Left Shift key will reread the current unit.

Using the Calculator with JAWS

To see the keystrokes, have the calculator open and press Insert+F2, then navigate to the Keyboard Manager.

Basic Facts

Access the Calculator under Programs, then Accessories.

Enter 25 + 5 =

*Insert+Up Arrow or Insert+8 on the numeric keypad to read the display.*

Press Escape to clear the display.

Memory Commands

A: Add display to memory

Alt+C: Clear memory

Alt+R: Recall value from memory

Other Basic Calculator Function Commands

Q: Square root

R: Reciprocal

N: Sign toggle

Scientific Calculator

Enter “Z” to toggle between the standard and scientific calculator. Use Insert+F2 to research the keystrokes needed to access this calculator.

Braille Math Editor

JAWS has a Braille Math Editor. Have Microsoft Word open. It is a layered command, enter Spacebar+JAWS key, then +  
Use a Braille display to enter information in Nemeth Code. When the student presses enter this information will be placed into the Microsoft Equation Editor.

# Internet Instruction

Review the JAWS Keystrokes documentation. Teach the student the Navigation Quick Keys for HTML.

1. Use the Chrome or Edge.
2. Move Back a Page: Alt+Left Arrow (Or Backspace)
3. Move Forward a Page: Alt+Right Arrow
4. List of links in a Dialog Box: Insert+F7
5. Accessing the Toolbar: Insert+F8
6. Moving to First Form: Insert+F5
7. Discussion of Virtual Cursor, sometimes the Virtual Cursor needs to be turned off, examples are programs like GMail and TypingClub.
8. Go Surf’s Up website from JAWS: [Freedom Scientific Surf's Up](https://www.freedomscientific.com/Training/Surfs-Up/_Surfs_Up_Start_Here.htm)   
   Go through the Surf’s Up lessons.
9. To start use the tab key, shift+tab, and enter key.
10. Insert+F5: Forms
11. Insert+F6: Headings
12. Insert+F7: Links
13. Insert+F9: Frames
14. Alt+Left Arrow: Backward a page
15. Alt+Right Arrow: Forward a webpage
16. Insert+Z: Disables Virtual Cursor, necessary for TypingClub
17. Control+Shift+Left or Right Arrows: Select information by words
18. Control+Left or Right Arrows: Select information by characters
19. Insert+Tab: Speak the name and status of a progress bar at any time
20. Alt+D: Address bar

# Wikipedia & Dictionary

1. Enter Alt+D and keyboard www.google.com

2. Enter the text string, Lion <enter>

3. Press H until you are on Lion – Wikipedia.

4. Press <enter> and navigate through this page with H.

5. When you are on a subheading that you want to learn more about hit the down arrow key.

**On-Line Dictionary**

1. Enter Alt+D. Enter [Dictionary.com](http://www.dictionary.com/).

3. Enter the text string, for this purpose enter “Clam” <enter>

4. Hit tab once to move off the Edit Box, then use the letter **“H”** to navigate.

5. Or you could just use ResearchIt. Enter Insert+Space, then R. Type in Clam and press enter. Wiktionary is the default search choice. Much easier.

**Excellent Web Site**

Review [npr.org](http://www.npr.org/). This web site has “Headings” throughout, use Insert+F6 to navigate it. *NPR tip, on “Heading,” press enter twice quickly to go directly to the article.*

Activity 11

Research a topic using Wikipedia.. Practice copying information into Microsoft Word. Or again you could just use ResearchIt. Insert+Space, then R.

Activity 12

Before starting this lesson, students should know how to move to the top and bottom of a web page with Ctrl+Home and Ctrl+End. They should know how to move backward and forward a web page with Alt+Left Arrow and Alt+Right Arrow.

1. Navigate to the McDonalds Online Menu, which is well designed.
2. Press tab until JAWS says, “Skip to Main Content.” Enter.
3. Tab through the Menu headings and JAWS will say “Full Menu Navigation Region.”
4. Select a category such as “Burgers” then press H to navigate to the “Burger Choices.”
5. Tab through the options and select one. Press N for non-linked text which will place the student somewhere in the body of the text. Then use the up and down arrow keys.
6. Then use Alt+Left Arrow to move back a web page.

Next go the Wendy’s online menu. It is currently not designed to work well with screen readers, but students seem motivated to access it. Discuss that to navigate this web page it is necessary to learn how to “route JAWS to PC” and how to “route PC to JAWS” and to become competent in using the JAWS cursor.

Navigation Quick Keys

V: Visited link

U: Unvisited link

F: Form control

Shift+F: Prior form control

T: Table

Shift+T: Prior table

H: Heading

Shift+H: Prior heading

P: Next paragraph

Shift+P: Prior paragraph

L: Next list

Shift+L: Prior list

N: Move to text that is not part of a link

Shift+N: Move back to text that is not part of a link

Insert+N will toggle the Navigation Quick Keys on or off. The keys can also be turned on or off in the Verbosity setting, Insert+V. This is just a short list of the Quick Keys. For a complete list of keys go to “JAWS Help,” then “What’s New.” The Quick Keys are also available in Microsoft Word during a “Say All.”

# Using PowerPoint with JAWS

Concepts

1. PowerPoint has three views; Slides, Notes, and Outline. Use the F6 command to move the focus to the relevant view.
2. When working in a Body Placeholder do not enter any more than five lines with the default point size. The text will still fit, with the current version of PowerPoint, but it may become so small that the audience may not be able to see it. The more text that is entered, the small the point size of the text.
3. Students should first enter their text on Braille notecards on a Perkins Brailler before creating the PowerPoint. They can then use the Braille notecards during their presentation.

Create a Design Template

1. Start with a blank PowerPoint document.
2. Go to Slide Show and select Slide Transition.
3. Go to Format and select Apply Design. Select a very basic Presentation Design.
4. *Both Transitions and the Design Layout will apply to the entire presentation, since they were selected before you started working.*
5. Save this file as a Design Template.

JAWS Keystrokes with PowerPoint

The following keystrokes are the entry level ones. Use Insert+F2 to review all the keystrokes.

1. Read Current Slide: Control+Insert+Down Arrow
2. Switch between Panes: F6
3. Move from Placeholder to Placeholder: Tab & Shift+Tab; remember to press Esc to move back to the Object Level and then tab through the Placeholders.
4. Move Back and Forward Between Slides: Spacebar and Backspace

Creating a Sample PowerPoint Presentation on Germany

1. Select the Title Slide. This is the default slide when creating a new presentation.
2. Tab once to go to the first shape. Press enter to go from the *Object Level*to the *Edit Level***.** Enter the following information: ***Germany***
3. Press Esc and tab to the second placeholder. Enter the following information:  
    ***Enter Your Name***
4. Select a new slide with Control+M. The Bulleted List format is selected by default.
5. Press tab once to go to the first shape, which is “Title Placeholder.” Enter:  
   ***Drainage***
6. Press Escape, then tab until “Body Placeholder” is selected. Enter the following:  
   ***The three largest rivers in Germany are the Danube, Rhine, and Elbe river.  
   Germany has 30 rivers.  
   The Danube river flows from the Black Forest into the Black Sea.***
7. Select a new slide with Control+M. The Bulleted List format is always selected by default, and it is the most accessible slide.
8. Tab once to go to the first shape, which is the “Title Placeholder.” Enter:  
   ***Berlin***
9. Press Escape, then tab until “Body Placeholder” is selected. Enter:  
   ***Berlin is in northern Germany, between the Spree and Havel Rivers.  
   The Reichstag building is the seat of the federal German parliament.***
10. Control+M to select a new slide. The Bulleted List format is selected by default.
11. Press the tab key once to go to the first shape on the slide, which is the “Title Placeholder.” Enter: ***Vegetation***
12. Press Escape and then tab to the “Body Placeholder.” Enter:  
    ***Forests in Germany cover 32 percent of the country.  
    There are over 10,300 plant species in Germany.  
    The most common vegetable in Germany is the tomato.***

13. Use the F6 command to move between the PowerPoint views.

Viewing the Slide Show

1. Enter F5 to View the Slide Show
2. Move Backward/Forward through the Slide Show with a Spacebar and Backspace
3. The screen is reviewed with Insert+Down Arrow.

*Create a PowerPoint using the Design Template you created.*

# JAWS Checklist

\_\_\_\_\_ Able to review the screen by character, word, and line

\_\_\_\_\_ Able to spell a word

\_\_\_\_\_ Able to stop speech in progress

\_\_\_\_\_ Able to change voice options: rate, volume, pitch, etc.

\_\_\_\_\_ Able to understand and use parent and child windows

\_\_\_\_\_ Able to route the PC to the JAWS cursor and vice versa

\_\_\_\_\_ Able to read all relevant Window information

\_\_\_\_\_ Able to use the JAWS help screens

\_\_\_\_\_ Able to understand and use Dialog box options

\_\_\_\_\_ Able to use JAWS configuration controls

\_\_\_\_\_ Able to determine which script files are present

\_\_\_\_\_ Able to use the Pass-Through key

\_\_\_\_\_ Able to explain use for Say Font & Say Color

\_\_\_\_\_ Able to spell check a document

\_\_\_\_\_ Able to spell check a document with the screen off or covered

\_\_\_\_\_ Able to use boldface

\_\_\_\_\_ Able to use underline

\_\_\_\_\_ Able to use italics

\_\_\_\_\_ Able to left justify

\_\_\_\_ Able to center

\_\_\_\_ Able to right justify

\_\_\_\_ Able to double-space

\_\_\_\_\_ Able to set tabs

\_\_\_\_\_ Able to monitor the location of tabs with speech access

\_\_\_\_\_ Able to cut information from one document and paste it in another

\_\_\_\_\_ Able to use and create styles in Microsoft Word

# Computer Skills Student Objectives

Student Competencies

1. Understand and able to maintain orientation to the keyboard

\_\_\_\_ Able to demonstrate mastery in keyboarding program

1. Ability to use basic Windows commands using Keystrokes only

1. \_\_\_\_\_ Demonstrate a basic knowledge of Window Explorer
2. \_\_\_\_\_ Navigate to all locations on the computer using Windows Explorer
3. \_\_\_\_\_ Navigate to several different folder locations and save files
4. \_\_\_\_\_ Navigate to several different folder locations and delete files
5. \_\_\_\_\_ Copy files to/from different folder/hard drive locations
6. \_\_\_\_\_ Use the Help command to obtain context sensitive information
7. \_\_\_\_\_ Open the Start Menu
8. \_\_\_\_\_ Access items on the Menu Bar using Alt+Hot Key combinations
9. \_\_\_\_\_ Safely shut-down the computer
10. \_\_\_\_\_ Able to switch the View to Details and demonstrate purpose
11. \_\_\_\_\_ Able to maximize current Window and demonstrate purpose
12. \_\_\_\_\_ Switch between open applications
13. \_\_\_\_\_ Close the current application
14. \_\_\_\_\_ Open the Control Menu for the current application
15. \_\_\_\_\_ Open the Control Menu for current document
16. \_\_\_\_\_ Understand/Move backward/forward through dialog boxes
17. \_\_\_\_\_ Understand/Move up/down through combo list boxes
18. \_\_\_\_\_ Understand/Move through multi-tabbed dialog boxes
19. \_\_\_\_\_ Demonstrate basic Microsoft Word keystrokes
20. JAWS Usage

1. \_\_\_\_\_ Understand the features listed in JAWS basics
2. \_\_\_\_\_ Able to adjust JAWS speed
3. \_\_\_\_\_ Able to adjust JAWS punctuation and verbosity
4. \_\_\_\_\_ Able to adjust Voice Settings
5. \_\_\_\_\_ Able to determine the title of the currently active window
6. \_\_\_\_\_ Use online documentation
7. \_\_\_\_\_ Use the PC cursor to review by character, word, and line
8. \_\_\_\_\_ Use the JAWS cursor to review by character, word, and line
9. \_\_\_\_\_ Able to Route PC to JAWS & JAWS to PC
10. \_\_\_\_\_ Review the screen with the JAWS cursor
11. \_\_\_\_\_ Determine the location of the cursor
12. \_\_\_\_\_ Able to read all or selected parts of the screen
13. \_\_\_\_\_ Able to select and delete/copy text
14. \_\_\_\_\_ Able to use the spelling checker
15. \_\_\_\_\_ Able to format text, bold, italic, etc.
16. \_\_\_\_\_ Able to obtain keystrokes using JAWS Managers
17. \_\_\_\_\_ Able to set configuration using JAWS Managers

4. Braille access

1. \_\_\_\_\_ Able to install Braille display
2. \_\_\_\_\_ Able to use online documentation
3. \_\_\_\_\_ Able to read all or part of the screen
4. \_\_\_\_\_ Able to switch between UEB grade 1 and grade 2
5. \_\_\_\_\_ Able to join and separate the Braille cursor
6. \_\_\_\_\_ Able to route the Braille cursor

5. Internet Access

a. \_\_\_\_\_ Able to move backward/forward through the links

b. \_\_\_\_\_ Able to obtain a list of current links

c. \_\_\_\_\_ Able to tab through a page and select links

d. \_\_\_\_\_ Able to access the toolbar

e. \_\_\_\_\_ Able to navigate through and insert data in forms

f. \_\_\_\_\_ Able to select speech/Braille friendly web pages

g. \_\_\_\_\_ Able to review Internet pages with the Virtual Cursor

h. \_\_\_\_\_ Able to use ResearchIt and Wikipedia

i. \_\_\_\_\_ Able to use ResearchIt and Wiktionary

JAWS Skills

1. Able to enter text and review this text by character, word, and line.

1. Able to enter text and then select the text. Able to select the text by character, word, and line. Able to cut, copy, and paste the text.
2. Able to configure Windows for the specific needs of a JAWS user.
3. Able to configure Windows for the specific needs of a low vision user.
4. Able to configure JAWS.
5. Able to save a file in a specific location. Able to retrieve the file.
6. Able to navigate through the computer independently using Windows Explorer. Able to complete all of the normal Windows functions; move, copy, delete files
7. Able to access a simple web page.
8. Able to access an advanced web page.
9. Competency in JAWS, Windows, and Microsoft Word commands.
10. Able to copy information off the Internet into Word/Duxbury.
11. Able to produce an accessible PowerPoint document.
12. Able to use ResearchIt with Wikipedia.
13. Able to use ResearchIt with Wiktionary.

# Appendix A: ZoomText/Fusion

Resources

I would suggest always using the following resources. Previous versions of ZoomText keystrokes are still available on the Internet.

* [Perkins Learning 11 New ZoomText Keystrokes](http://www.perkinselearning.org/technology/posts/zoomtext-11-new-key-commands)
* ZoomText: <https://www.freedomscientific.com/products/software/zoomtext/>
* Fusion: <https://www.freedomscientific.com/products/software/fusion/>

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Activity 1 \_\_\_\_\_\_\_

Activity 2 \_\_\_\_\_\_\_

Activity 3 \_\_\_\_\_\_\_

Activity 4 \_\_\_\_\_\_\_

Activity 5 \_\_\_\_\_\_\_

Activity 6 \_\_\_\_\_\_\_

Activity 7 \_\_\_\_\_\_\_

Activity 8 \_\_\_\_\_\_\_

Activity 9 \_\_\_\_\_\_\_

Activity 10 \_\_\_\_\_\_\_

Activity 11 \_\_\_\_\_\_\_

Activity 12 \_\_\_\_\_\_\_