AP®

2023

Assistive Technology Configuration Instructions

In-School Digital AP® Exams

The instructions in this document should be followed by students taking 2023 in-school digital AP® Exams using assistive technology. These configuration instructions should be followed before answering preview questions in Bluebook™ (the student testing app) and before exam day.

Any approved assistive technology a student uses when they're online should still work during the exam. If a student uses assistive technologies, such as screen readers (e.g., JAWS, NVDA, VoiceOver, ChromeVox), magnification software (e.g., ZoomText Fusion), or dictation software (e.g., Dragon Naturally Speaking), to interact with a standard web browser, the same commands can be used to navigate through content in the digital exam. The exception to this would be if a student uses a web-based assistive technology or a browser extension.

Students using assistive technology should complete any configuration steps before completing preview questions in Bluebook and again before exam day.

Students open/start their assistive technology device or software before they open Bluebook. On exam day, students should verify their settings and make any necessary final adjustments before they begin the check-in process in Bluebook. Students will be able to access configuration instructions through the **Help** menu in Bluebook if needed.

Exceptions are noted when configuration is not required ahead of the exam.

Important: The best way to test digital exam compatibility with assistive technologies is for a student to practice with the preview questions in Bluebook on the device they plan to use for their exam(s) with the assistive technology enabled and set to the necessary configurations.

Digital Exam Accommodations

Some accommodations are administered differently on digital exams than on paper and pencil exams. For example, a student who is approved to use a human reader on paper and pencil exams may use a screen reader for digital exams. Also, some accommodations may not be needed for a digital exam. For example, a student who is approved for large print may use the zoom tool that's available to all test takers.

The accommodations listed in this table will be delivered for the 2023 digital AP Exams, and students approved for these accommodations can use assistive technology (AT).

ACCOMMODATIONS WITH APPROVED AT DEVICES

Approved Accommodation	Examples of Approved AT Devices
Human Reader	Screen Reader or Text-to-Speech
Writer/Scribe to Record Responses	Speech-to-Text, Braille Display
Prerecorded Audio (MP3 via Streaming)	Screen Reader or Text-to-Speech
Braille with Raised Line Drawings, Contracted	Screen Reader, Braille Display, etc.
Raised Line Drawings	Screen Reader
Braille Writer	Braille Display, Voice Recognition (Speech-to-Text), Screen Reader
Assistive Technology	Screen Reader, Speech-to-Text, Text-to-Speech, Braille Display, other approved AT devices
Assistive Technology–Compatible Test Form	Screen Reader

If there are questions about the accommodations a student is approved for, the SSD coordinator can look up the student's accommodations in SSD Online or **contact the College Board SSD Office**.

Configuring and Using Assistive Technology

Configuration steps need to be taken **each time** a student uses Bluebook, both for answering preview questions and for exam day. In some cases, your school's technology staff may need to complete the configuration steps on the student's testing device (for instance, if the device is managed and settings cannot be adjusted by the student).

Before Exam Day

If settings need to be configured for the assistive technology a student plans to use, the student should complete any configuration steps before answering preview questions in Bluebook and again before exam day. It's important for students to answer preview questions in Bluebook with the assistive technology

configuration settings in place that they intend to use on exam day, so they have an opportunity to become familiar with how the settings work within Bluebook.

On Exam Day

If any settings need to be adjusted on exam day, configuration steps should be completed **before** beginning the check-in process in Bluebook. Assistive technology needs to be open and properly configured on exam day so a student can complete the check-in process before the exam begins. Once a student enters the start code at the end of the check-in process, they won't be able to adjust settings because Bluebook locks their device.

Screen Readers and Text-to-Speech

Screen readers are most often external software that students use on their device to have all onscreen content read aloud. Screen readers are often used by students who have visual impairments.

Text-to-speech (TTS) technology is the screen reader functionality available through a device's operating system. TTS technology reads the text on a screen and provides image descriptions depending on available settings or preferences.

A student should configure assistive technology settings before opening Bluebook to answer preview questions and before exam day. The settings may include verbosity, punctuation, text processing, and other settings as needed. Students need to ensure all settings are configured before beginning the check-in process in Bluebook On exam day, students won't be able to adjust these settings after entering the start code at the end of the check-in process.

Screen Readers

This section includes general information applicable to external screen-reader software such as JAWS and NVDA.

While answering preview questions in Bluebook and during the digital exam, a student will use the typical/native key commands that they normally use to navigate a webpage with their screen reader. Most exam pages are structured with the following regions. A student can navigate with these regions/landmarks:

- Exam Player Controls
  - Test timer
  - Test tools (Annotate, Reference, More, etc.)
- Exam Stimulus/Passage
  - Footnotes
  - Long description for graphics
- Exam Question
  - Question
  - Answer options
  - Long description for graphics
- Navigation

In general, the following test components are defined with a heading:

- Test name
- Set directions
- Passage title/poem title (when applicable), etc.
- Prompts for free-response questions (when applicable)
- Document title for document-based questions (when applicable)
- Algorithms and relevant steps (AP Computer Science Principles)

Recommended Verbosity and Punctuation Settings

Configure the verbosity, punctuation, text processing, and other settings for each digital exam subject as needed. Configuration needs to be done before opening Bluebook to answer preview questions and again before exam day. Setting configurations must be in place before students begin the check-in process on exam day. On exam day, students won't be able to adjust these settings after entering the start code at the end of the check-in process.

JAWS Screen Reader

1. Go to the JAWS QuickSettings Center (JAWS Key + F2 > Choose **Quick Settings**). **Select Editing Options > Punctuation** and select an option as appropriate (**All, Most, Some, None**).

2. Go to **Virtual Cursor Verbosity Level** and select **High** so that regions within passages will be announced.

NVDA Screen Reader

1. From the **NVDA Settings** (Insert + N > Preferences > Settings), select **Speech**, then **Punctuation/symbol level** and select an option as appropriate (**All, Most, Some, None**).

2. Alternatively, NVDA users can change punctuation settings by activating the keystrokes **Insert + P**.

   Note: In general, the College Board Accessibility Compliance Office recommends that NVDA users set the symbol punctuation level of ellipses to "Most."

3. **Symbol Punctuation** in NVDA can be adjusted to align with the Speech Punctuation. From the **NVDA Settings** (Insert + N > Preferences > Punctuation/symbol pronunciation), select **symbols** to adjust the **level** and select an option as appropriate:

   - Filter by the text "..."
   - Navigate to the Level combo box and choose "All" or "Most"

4. From the **NVDA Settings** (Insert + N > Preferences > Settings), select **Document Formatting > Elements** > enable (check) **Landmarks and regions**. Click **Apply**, then **OK**.

Apple VoiceOver

- From the **System Preferences** > **Accessibility** > **VoiceOver** > **Open VoiceOver Utility** > **Verbosity** > **Text** > **Punctuation**.
- Then select an option as appropriate: **All, Some, None**.

If VoiceOver is on, adjust punctuation with one of the following:

A. **Press VO-F8** to open **VoiceOver Utility** > **Verbosity** > **Text** > **Punctuation**

B.   **Press VO-V** to open Rotor and select > **Punctuation** > **All**

Windows Narrator

Windows 10

From the **Settings** > **Ease of Access** > **Narrator** > **Change what you hear when reading and interacting**, or Press **Narrator + V** and select options as appropriate:

- **Change the level of detail Narrator provides about text and controls:** 1-Text only, 2-Some control details, 3-All control details, 4-Some text details, **5-all text details** (recommended based on the context).

- **Change the level of context Narrator provides for buttons and other controls:** 1-No context, 2-Immediate context, 3-Immediate context name and type, 4-Few context of new control, 5-Full context of old and new controls

Windows 11

From the **Settings** > **Accessibility** > **Narrator** > **Verbosity**, or Press **Narrator + V** and select options as appropriate:

- **Verbosity level**: 1-Text only, 2-Some control details, 3-All control details, 4-Some text details, **5-all text details** (recommended based on the context).

- **Context level**: 1-No context, 2-Immediate context, 3-Immediate context name and type, 4-Few context of new control, 5-Full context of old and new controls

ChromeVox

To adjust **punctuation** levels with ChromeVox, press **Search + a** then **P** to cycle through the options and choose "**ALL**." Alternatively, a student can navigate with **Shift + Search + arrows** to read out each character of the options.

By default, ChromeVox should have the "**Enable verbose descriptions**" setting checked. This setting will allow the "referenced content" region to be announced when navigating with the ChromeVox cursor.

If this setting is not enabled, access the floating accessibility menu with **Shift + Alt + L** and navigate to the accessibility settings button. From **Manage accessibility features**, navigate to **ChromeVox settings** > activate **Enable verbose descriptions** and set **Punctuation echo: ALL**.

Link to Referenced Text

This information applies to the multiple-choice section for the **AP English Literature and Composition** and **AP English Language and Composition Exams** only. On questions that refer to a specific section of the stimulus text, the symbol **>>** will display after the reference. If a student using a screen reader clicks on this symbol, the referenced text will be read aloud. If they scroll past the referenced text and click on this symbol, the passage will scroll back so the referenced text is at the top of the screen. If a student is using a screen reader and navigates to "link to referenced content," the referenced content will be read to them.

Text-to-Speech

Approved students who don't use external screen readers may use the Text-to-Speech (TTS) functionality on their device. Text-to-speech tools read aloud text that appears on the screen. Below are configuration instructions to be taken before opening the Bluebook app for specific TTS tools for Windows, Mac, iPad, and Chromebooks.

Windows Narrator

Narrator reads aloud the text on screen.

To start Narrator:

1. Press the **Windows logo key + Ctrl + Enter** together to start Narrator. Press these keys again to stop Narrator.

2. Press the **Windows logo key + Ctrl + N** together to open Narrator settings, and then turn on the toggle under **Use Narrator**.

To stop Narrator from reading at any time, press the **Ctrl** key.

To use your mouse cursor to read text:

1. Go to the Narrator settings titled **Use Narrator Cursor**.

2. Activate the following settings:

   - Show the Narrator cursor

   - Move my text cursor with the Narrator cursor as Narrator reads text

   - Sync the Narrator cursor and system focus

3. Activate any other settings as per the student's preference.

Important: The Narrator key is a modifier key in the Narrator commands. Both the Caps Lock and Insert keys serve as the Narrator key by default.

Manage Your Data and Services

Turn Off "Help make Narrator better" to prevent diagnostic and performance data from automatically being sent to Microsoft.

To learn more about Narrator, visit the **Complete Guide to Narrator.**

Mac OS

Mac OS has a speech option that will speak the text when a student presses a key or set of keys, or uses their mouse or cursor.

To use defined key commands:

For all supported Mac operating systems (Mac OS 11 – Big Sur, Mac OS 12 – Monterey, and Mac OS 13 – Ventura):

1. Go to the Apple menu and select **System Preferences**.

2. Select **Accessibility**.

3. From the **Accessibility** screen, select **Spoken Content** from the left menu.

4. Check the option **Speak Selection**.

5. To change preferences, select **Options/Info**.

6. When the key commands are set, click **OK**.

After completing the above steps, each time a student types the established key combination, any text the student selects will be read aloud. To stop the speech, type the same key combination again.

To use the mouse cursor to read text:

For all supported Mac operating systems (Mac OS 11 – Big Sur, Mac OS 12 – Monterey, and Mac OS 13 – Ventura):

1. Go to the Apple menu and select **System Preferences**.
2. Select **Accessibility**.
3. From the **Accessibility** screen, select **Spoken Content** from the left menu.
4. Select **Speak items under the pointer**.
5. Select **Options/Info** to customize the speech and verbosity settings.

To learn more about how to have your Mac speak text that's on screen, **review the user guide for your Mac OS.**

iPad (iOS)

The iPad can speak selected text or the entire screen.

For all supported iOS devices:

1. Tap on the **Settings** icon and select **Accessibility**.
2. From the **Accessibility** screen, select **Spoken Content**.
3. Then select **Speak Screen**.
4. Enable (i.e., toggle on) **Speech Controller** and/or **Highlight Content**, as preferred.

External keyboards must be used with iPads for digital AP Exams. Go to Settings > Accessibility > Keyboards, tap **Full Keyboard Access**, then turn on **Full Keyboard Access**.

ChromeVox – Select to Speak

A user can hear full pages read aloud with **ChromeVox**, or hear parts of a page, including specific words, read aloud with **Select to Speak**.

1. At the bottom right of the screen select the time OR press **Alt + Shift + s**.
2. Then, select Settings > Accessibility > enable Select to Speak.

Note: If Select to Speak does not appear in the accessibility quick settings, sign in to the Chromebook and go to Settings > Accessibility > Manage accessibility features > turn on Show accessibility options in Quick Settings or Always show accessibility.

Depending on the keyboard, a user can press the **Search** key or the **Launcher** key for some shortcuts. Both keys work the same way.

Option 1

- Press and hold the **Search** key.
- Drag the cursor over an area of text.

Option 2

- Highlight the text to be read.
- Press **Search + s**.

Tip: For devices with a touchscreen, a user can tap a line of text or drag a finger over an area of the screen.

Chromebook Kiosk floating accessibility menu

By default, the accessibility menu is hidden on devices running Chrome kiosk apps, such as Bluebook. For Chromebooks that are school- /center-managed, ensure that the Kiosk accessibility features are active to ensure inclusiveness of the Chrome device. The default device settings should be configured to "Allow user to decide," especially to enable the kiosk floating accessibility menu (see Figure 1). The menu appears at the bottom right corner of the screen. To prevent the menu from blocking app components, such as buttons, users can move it to any screen corner.

Figure 1: Kiosk floating accessibility
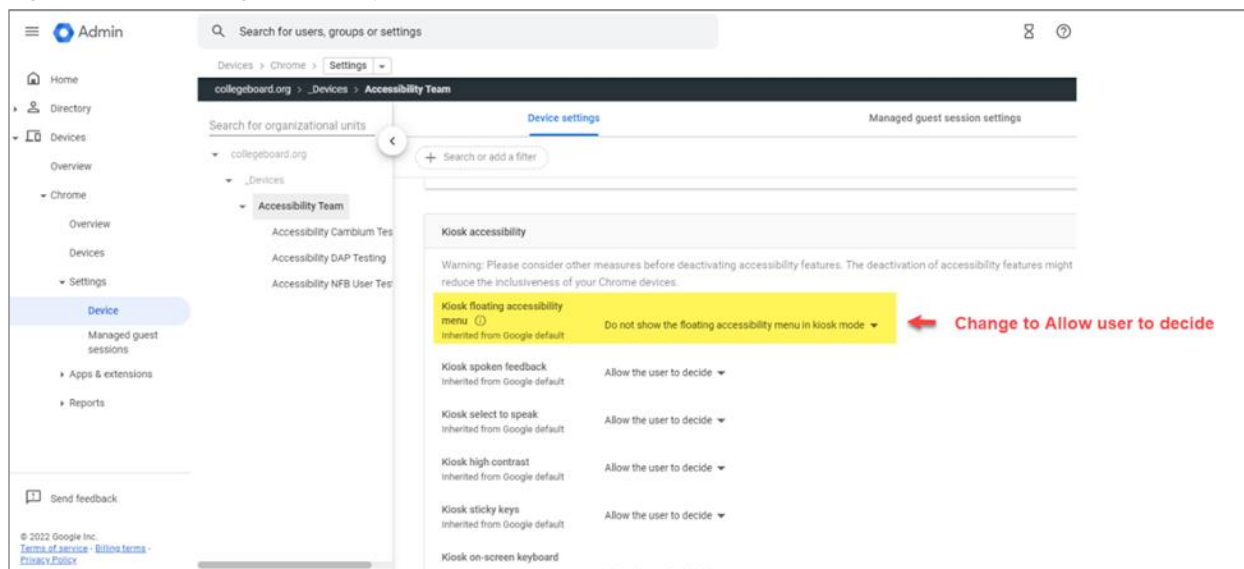
Voice Recognition (Speech-to-Text) Technology

Voice recognition (speech-to-text, or STT) technology transcribes a student's spoken words into text for item responses in the digital exam. Students approved for this technology or for a writer/scribe may use STT technology for digital exams.

Students using STT technology must disable word prediction. A student might need to configure their STT technology for digital testing. The following configuration steps need to be completed before a student begins the check-in process in Bluebook on exam day.

Dragon Naturally Speaking

Follow these steps to configure **Dragon Naturally Speaking 15+** (Home or Professional Individual for Windows):

1. Use the **Tools** drop-down list on the Dragon Bar to open the **Options** dialog box.

2. Go to the **Data** tab, and ensure that the following are unchecked:

    a. Uncheck **Don't back up user profile**.

    b. Uncheck **Run Accuracy Tuning at the time schedule by your administrator**.

    c. In the **User Experience Collection**, uncheck **Help us improve Dragon**.

Custom Commands for Dragon

College Board has developed custom commands for the digital exams for students who use Dragon. If a student typically uses custom commands, **contact the College Board SSD office** for further details about how to apply commands to Bluebook.

Windows Speech/Voice Recognition

Before exam day, the Windows built-in Speech Recognition application must be configured on the device the student will use for the exam. The application can be set up through the **Windows Control Panel**. During configuration, **Speech Recognition Voice Training** must be completed by the student for optimal performance.

To use Windows Narrator, follow the steps below for your operating system:

Windows 10

Go to **System Settings** > **Ease of Access** > **Speech** > turn on **Speech recognition**.

- Keyboard shortcut: Press **Windows logo key** + **Ctrl + S** to turn on speech recognition.

- Help the PC recognize a user's voice**: https://support.microsoft.com/en-us/windows/use-voice-recognition-in-windows-83ff75bd-63eb-0b6c-18d4-6fae94050571#WindowsVersion=Windows_10**

Windows 11

Go to **System Settings** > **Accessibility > Speech >** turn on **Voice Access**.

- Keyboard shortcut: Press **Windows logo key** + **Ctrl** + **S** to turn on speech recognition.

- Help the PC recognize a user's voice: **https://support.microsoft.com/en-us/windows/use-voice-recognition-in-windows-83ff75bd-63eb-0b6c-18d4-6fae94050571#WindowsVersion=Windows_11**

Tip: With Windows 10 or Windows 11, to help with navigation and selection of elements in Bluebook, say "show numbers." Numbers will appear on the screen for every element/grid in the active window. Say an item's corresponding number to select it (e.g., "19, OK").

Privacy and Diagnostics for Windows 10 and Windows 11

Students must also adjust these settings:

1. Go to **Start**, then select **Settings** > **Privacy**, > **Diagnostics & Feedback**.

2. In the **Diagnostic Data** section, select the **Basic** radio button.

3. Select the **Speech** tab.

4. Set the **Online Speech Recognition** toggle to **Off**.

MacOS and iOS Enhanced Dictation/Voice Control

On a Mac, choose **Apple menu** > **System Settings** > **Accessibility** > enable (turn on) **Voice Control**.

Voice Control guides are available for:

- MacOS 11: **https://support.apple.com/guide/mac-help/control-your-mac-and-apps-using-voice-control-mh40719/11.0/mac/11.0**

- MacOS 12: **https://support.apple.com/guide/mac-help/mobility-mchl654a7cc7/12.0/mac/12.0**

- MacOS 13: **https://support.apple.com/guide/mac-help/mobility-mchl654a7cc7/13.0/mac/13.0**

Tip: To help with navigation and selection of elements in Bluebook, say "show numbers." Numbers will appear on the screen for every element/grid in the active window. Say an item's corresponding number to select it (e.g., "Click 19, OK").

Privacy and Analytics

Students testing with a Mac computer or an iPad need to make sure their device is opted out of Apple's Diagnostic and Usage Program and Improve Siri and Dictation.

1. To opt out of the Diagnostic and Usage Program: Disable Analytics through the security and privacy settings.

2. To opt out of Improve Siri and Dictation: Go to **Settings** > **Privacy** > **Analytics & Improvements** and tap to **turn off Improve Siri and Dictation**.

Chromebook

On a Chromebook, at the bottom right, select the time or press **Alt + Shift + s**. Select **Accessibility** > select **Dictation.**

Note: If Dictation does not appear in your accessibility quick settings, sign in to Chromebook and go to **Settings** > **Accessibility** > **Manage accessibility features** > turn on **Show accessibility options in Quick Settings** or **Always show accessibility options in the system menu**.

Tap or select where you want to type (input field, free-response questions, essays, etc.). Press **Search + d** or press **Launcher + d**.

For more information, visit Type text with your voice - Chromebook Help - Google Support

Refreshable Braille Displays

Refreshable Braille Displays (RBDs) are used to read text-only content on digital AP Exams. Alternative text descriptions are embedded in the exams for all graphics. RBDs must be properly set up before they can be used by students. For information about installing and setting up RBDs, refer to the product's provided instructions and manuals.

Refreshable braille is not recommended for AP subjects that include graphics. If a student will need tactile graphics for their digital AP Exam and this hasn't already been requested, the student should talk to their AP coordinator and SSD coordinator as soon as possible so they can help the student determine available options.

Screen Magnification

Screen magnification technology enlarges the content displayed on the computer screen in order to assist students with visual impairments. All students can zoom using their device's native controls:

- **On a PC or a Chromebook**: Control +/-

- **On a Mac**: Command +/-

- **On an iPad**: pinch and zoom

Keyboard Shortcuts

Students testing with certain types of assistive technology may find it helpful to use keyboard shortcuts to navigate within the digital exam. The following keyboard shortcuts can be used in Bluebook. No separate configuration is needed to use these commands.

KEYBOARD SHORTCUTS FOR MULTIPLE-CHOICE QUESTIONS

Action	PC	Chromebook	Mac	iPad
Zoom IN	Control + Plus (+)	Control + Plus (+)	Command + Plus (+)	Command + Plus (+) or Pinch to Zoom
Zoom OUT	Control + Minus (-)	Control + Minus (-)	Command + Minus (-)	Command + Minus (-) or Pinch to Zoom
Zoom back to 100%	Control+0	Control+0	Command + 0	Double-Tap Space Bar
Back	Control + Alt + B	Control + Alt +B	Command + Ctrl + B	Command + Ctrl + B
Next	Control + Alt + X	Control + Alt + X	Command + Ctrl + X	Command + Ctrl + X
Help	Control + Alt + H	Control + Alt + H	Command + Ctrl + H	Command + Ctrl + H
Open/Close Directions	Control + Alt + Shift + D	Control + Alt + Shift + D	Command + Ctrl + Shift + D	Command + Ctrl + Shift + D
Hide/Show Timer	Control + Alt + T	Control + Alt + T	Command + Option + T	Command + Option + T
Pause Timer *	Control + Alt + P	Control + Alt + P	Command + Option + P	Command + Option + P
Close 5 Min Message	Control + Alt + T	Control + Alt + T	Command + Option + T	Command + Option + T
Annotate	Control + Alt + A	Control + Alt + A	Command + Option + A	Command + Option + A
Open Annotation (w/ Caret Browsing On)	Shift + Enter	Shift + Enter	Not Applicable	Not Applicable
Reference	Control + Alt + R	Control + Alt + R	Command + Option + R	Command + Option + R
Select/Deselect Option A	Control + Shift + 1	Control + Shift + 1	Command + Ctrl + 1	Command + Ctrl + 1
Select/Deselect Option B	Control + Shift + 2	Control + Shift + 2	Command + Ctrl + 2	Command + Ctrl + 2

Action	PC	Chromebook	Mac	iPad
Select/Deselect Option C	Control + Shift + 3	Control + Shift + 3	Command + Ctrl + 3	Command + Ctrl + 3
Select/Deselect Option D	Control + Shift + 4	Control + Shift + 4	Command + Ctrl + 4	Command + Ctrl + 4
Select/Deselect Option E	Control + Shift + 5	Control + Shift + 5	Command + Ctrl + 5	Command + Ctrl + 5
Option Eliminator Mode	Control + Alt + M	Control + Alt + M	Command + Option + M	Command + Option + M
Eliminate Option A	Control + Alt + 1	Control + Alt + 1	Command + Option + 1	Command + Option + 1
Eliminate Option B	Control + Alt + 2	Control + Alt + 2	Command + Option + 2	Command + Option + 2
Eliminate Option C	Control + Alt + 3	Control + Alt + 3	Command + Option + 3	Command + Option + 3
Eliminate Option D	Control + Alt + 4	Control + Alt + 4	Command + Option + 4	Command + Option + 4
Eliminate Option E	Control + Alt + 5	Control + Alt + 5	Command + Option + 5	Command + Option + 5
Expand/Collapse Left	Control + Shift + L	Control + Shift + [	Command + Ctrl + L	Command + Ctrl + L
Expand/Collapse Right	Control + Shift + R	Control + Shift +]	Command + Ctrl + R	Command + Ctrl + R

* The function to pause the timer is available only to students with an approved accommodation for breaks as needed.

Note: For multi-select options, use the space bar to make your selection.

KEYBOARD SHORTCUTS FOR FREE-RESPONSE QUESTIONS

Action	PC	Chromebook	Mac	iPad
Bold	Control + B	Control + B	Command + B	Command + B
Italics	Control + I	Control + I	Command + I	Command + I
Underline	Control + U	Control + U	Command + U	Command + U
Indent Text	Control + M	Control + M	Command + M	Command + M
Superscript	Control + Shift + Plus (+)	Control + Shift + Plus (+)	Command + Ctrl + Plus (+)	Command + Ctrl + Plus (+)
Subscript	Control + Shift + Minus (-)	Control + Shift + Minus (-)	Command + Ctrl + Minus (-)	Command + Ctrl + Minus (-)
Undo	Control + Z	Control + Z	Command + Z	Command + Z
Redo	Control + Y	Control + Y	Command + Shift + Z	Command + Shift + Z
Cut	Control + X	Control + X	Command + X	Command + X
Copy	Control + C	Control + C	Command + C	Command + C
Paste	Control + V	Control + V	Command + V	Command + V
Insert Symbols	Control + Shift + /	Control + Shift + /	Command + Ctrl + /	Command + Ctrl + /