

# Intro to iPad Accessibility Features for Blind and Low Vision Students

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iOS 9.3

## Chapter 3: iPad with VoiceOver

### Objectives

- 3.1 Practice Making VoiceOver Gestures
- 3.2 Navigate the Home Screen Apps with VoiceOver
  - Activate (Open) an App with VoiceOver
  - Close an App with VoiceOver
  - Move an App/Create a Folder
  - Move between Home pages with VoiceOver
- 3.3 Expose/Dismiss the Search Screen, Notification Center & Control Center
- 3.4 Screen Curtain/Speech On and Off
- 3.5 Basic Rotor Setting: Speech Rate
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The *Introduction to iPad Accessibility Features for Blind and Low Vision Students* manual is being shared on the *Paths to Technology* website with permission from SAS Institute Inc.

This section is an introduction on how to use VoiceOver, the iPad's built-in screen reader. VoiceOver uses simple gestures to interact with items on the screen and to drive the iPad. Touch the screen to hear an item's description. Touching items around the screen enables visually impaired users to understand additional spatial relationships, locations and context. VoiceOver uses distinctive sounds to alert when an application opens, when a pop-up box appears, when the screen is updated, etc. The rotor is a virtual control that acts like a physical dial when VoiceOver is on. Use the rotor to change VoiceOver settings and to access additional commands and features. The rotor settings enable you to choose how to maneuver through a document, how to navigate a web page, how to easily edit documents, and to choose your preferred speaking rate.

## 3.1 Practice Making VoiceOver Gestures

VoiceOver changes the gestures that are used to control the iPad so that you can hear the descriptions without activating the buttons. VoiceOver uses one, two, three and four fingers to tap, hold, drag or swipe.

Gestures work best with a light touch and quick movement. The hand should hover with the palm just above the iPad's surface. Movements should be small, with just the finger and/or wrist movement, not a whole hand movement. Teachers should demonstrate the movements first before asking the student to do the movement:

Single Tap: Use a light, quick movement; practice a "tickle" or "feather" touch on the student's arm.

Double Tap: Practice by making a fist and knocking lightly on the table; quick, staccato knocks/taps.

Split Tap: Drag the finger around the screen to locate the desired item, then drop another finger or thumb onto the screen.

Swipe: For a right-handed person, use the left hand to make a fist. Extend the left index finger and point the index finger to the right. Use the right index finger to make small, quick swipes across the edge of the left index finger.

Swipe Down: Make a fist and extend the index finger. With the hand hovering just above the iPad, swipe down by quickly bending the finger.

Rotor: The rotor can be challenging for some people; try different methods until you find one that works for you (or your student).

- Extend your thumb and index finger and twist gently
- Extend your index finger and middle finger and twist gently
- Extend the index fingers on both your left and right hands and move them simultaneously drawing a half circle
- Extend the right index finger and drag down while extending the left index finger and drag up
- Simultaneously, hold the thumb and flick just the index finger

- With 3 or 4 finger gestures, be sure that the fingers are loose (slightly bent) and that the fingers are spread apart.

### 3 or 4 Finger Swipe Left:

If using your right hand to swipe left:

- Place your spread fingers pointing towards the top of the screen and slightly move your hand to the left
- Place your hand so that the thumb is down and push the hand to the left
- Place the hand so the thumb is up and drag your hand to the left

### 3 or 4 Finger Swipe Right:

If using the right hand to swipe right:

- Place your spread fingers pointing towards the top of the screen and slightly move your hand to the right
- Place the hand so that the thumb is down and pull your fingers to the right
- Switch hands and use the left hand (thumb down) and swipe right

4 Finger Swipe Up: Push the four fingers forwards (towards the top of the iPad screen) using the pads of the fingertips. People with long fingernails should flatten their hand (palm very close to the iPad's screen) so that the fingernails do not interfere.

**TEACHER HINT: BRAILLE STUDENTS, WHO ARE USED TO TYPING ON THE PERKINS BRAILLER, OFTEN NEED TO BE TAUGHT TO USE A LIGHT “TICKLE” TOUCH ON THE IPAD. IF A BLIND STUDENT INITIALLY HAS TROUBLE FLICKING IN A STRAIGHT LINE, ADD A PROTECTIVE IPAD COVER OR IPAD DECORATIVE “SKIN” TO CREATE A RAISED EDGE. HAVE THE STUDENT USE THE RAISED EDGE AS A STRAIGHT LINE GUIDE WHEN LEARNING TO FLICK.**

The iPad has a VoiceOver Practice screen. This page allows you to practice various VoiceOver gestures; while on this screen, VoiceOver will verbally state what gesture you *actually* made and what that gesture does. Example: *“Two-finger, single tap. Pause or continue speech.”*

Practice 1, 2, and 3 fingers to tap, double tap, triple tap and double tap; also practice tap and hold, drag, swipe and rotor twist.

Tap anywhere on the VoiceOver practice screen to move the VoiceOver cursor off of the Status bar and to activate the Practice mode. When finished, tap the Done button in the top right corner – **then double tap to activate.**

**TRAINER HINT: “SYNCHRONIZED SWIMMING”:** DURING THIS TRAINING, PARTICIPANTS WILL BE ASKED TO PRACTICE THESE GESTURES TOGETHER. THE TRAINING INSTRUCTOR WILL GIVE A COMMAND SUCH AS “ONE FINGER, SINGLE TAP”. ON THE COUNT OF THREE, EACH PARTICIPANT WILL DO A ONE FINGER TAP AND HOPEFULLY ALL THE VOICEOVER VERBAL DESCRIPTIONS WILL BE IN UNISON. REPEAT EACH COMMAND UNTIL EVERYONE IS IN-SYNC.

Practice the gestures repeatedly to develop muscle memory. It does take a little time to learn to make the gestures correctly! Take the time to teach the correct techniques in the Practice Mode before trying to complete activities on the iPad. There are several common issues that people make when learning VoiceOver gestures:

- Gesture is too slow. Example: When trying to do a right swipe but the iPad recognizes the gesture as a tap.
- Gesture is too hard. A tap should not sound like a knock on the iPad screen!
- Gesture is too big. A right swipe should only be an inch or so long; it should not go from the left side of the screen to the right side of the screen!
- Gesture is not straight. Right and left swipes are often curved and the iPad will recognize the gesture as a down swipe (or up swipe).
- Fingers are rigid and touching. When doing 2, 3 or 4 finger gestures, the fingers should be loose, slightly bent, and apart. Many VI students position their fingers straight out, hold the fingers very rigid with the fingers tightly against each other. Have the student curve their fingers and spread them apart. Practice loosening the fingers by placing the four spread out fingertips - with knuckles bent - on the table with the palm as high as possible, then with a relaxed hand, loosely bring the palm close to the table and back up again (repeatedly) with the fingertips remaining on the table.
- Multiple body parts touching the screen. Often, the student is making a gesture and the palm or other body part will unknowingly touch the screen. Sometimes it is the “helper” hand that is holding the edge of the iPad that touches the screen. With low vision students - who lean in close – he/she will sometimes literally touch the screen with their nose!

Reteach gestures that are challenging. Use exaggerated movements to explain what is happening. Example: If the movement is too big, demonstrate the “dive bomb tap method” - start with hand over the head and dive to the iPad screen to make that 1 finger tap. Then, demonstrate the correct movement. When working with totally blind students, demonstrating with the hand-under-hand method is often beneficial.

### Activity 3.1 VoiceOver Practice to learn Gestures

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1. Launch Settings: (1 finger, tap).
2. Select General: (1 finger, tap).
3. Turn VoiceOver on: (1 finger, slide button to “on”).
4. Select VoiceOver Practice: (1 finger, tap (hear “VoiceOver Practice”) then double tap).
5. Start VoiceOver practice: (1 finger, tap in the middle of the screen).
6. Practice the various 1, 2, and 3 finger gestures.

If you are participating in the training, the trainer will call out various gestures and have the group try to perform these gestures in sync.

7. Exit VoiceOver Practice: (1 finger, drag to the Done button in the top right corner (hear “Done button”) then double tap).

## 3.2 Navigate the Home Screen Apps

There are multiple ways to navigate the Home screen:

- Drag: Drag your finger systematically around the screen in a grid fashion (left to right, then drop down a line) to hear the apps that are on the screen. This method provides spatial feedback about where the apps are physically displayed around the screen. Use a split tap to activate item.
  - Split Tap: Drag one finger to desired location – continue to hold that finger on the screen while briefly dropping a second finger on the screen.
- Swipe: One finger swipe right to move to next app on the screen; VoiceOver will say the name of that app. Rapidly swipe multiple times to quickly move through apps to find the one you want. Swipe left to go to the previous app.
- Read All: Two fingers, swipe up will read the entire page starting at the top left app icon. Two fingers, tap will pause the reading. Two fingers, tap again will resume the reading or two fingers, swipe down will start the reading from where it was paused.
- 4 Fingers tap at the Top of the Screen: Moves the VoiceOver cursor to the top left corner of the screen.
- 4 Fingers tap at the Bottom of the Screen: Moves the VoiceOver cursor to the bottom left corner of the screen.

Students with visual impairments should not try to “tap” on an app; instead, drag the finger around the screen – or even better, drag the finger in the known vicinity of the app. Once VoiceOver says the name of the desired app, split tap. Example: Calendar is in the top left corner; Safari is in the bottom right corner. Move directly to the corner then drag your finger around until you hear the desired app.

## Activity 3.2a Practice Navigating the Home Screen with VoiceOver

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1. Go to the Home screen: (Press the Home button one time).
2. Practice Drag: (1 finger, systematically drag across the screen).
3. Practice Flick: (1 finger, swipe right or left to move forward or backwards across the screen).
4. Practice Read All: (2 fingers, swipe up to read from the top).
5. Pause Read All: (2 fingers, single tap).
6. Resume Read All: (2 fingers, single tap).

Practice the same Activity 2 again, this time with faster movements! Move from the first app to the bottom app as quickly as you can. You should only hear the first sound of each app before moving on to the next one. Example: “Calendar” – you will only hear “k”; “Photos” will be “f”.

### *“Activate” (Open) an App with VoiceOver*

There are different ways to “activate” or open an app using gestures. Touch an app until you hear the desired app’s name. Use a *1 finger, double tap* on the app to open it. **Remember, you have to hear the name of the app, then use 1 finger, double tap.** Once you hear the name of the app, you can *double tap* anywhere on the screen. When swiping right to find the desired app, once you hear the name of the app, you can *1 finger, double tap* anywhere on the screen. Or, *drag* your finger in the known vicinity of the desired app. Once you hear the desired app, *split tap* to open the app. We will use the term “activate” to open an app – you can choose to use your preferred gesture.

### *Close an App with VoiceOver*

Close an app by clicking the Home button one time or use the *4 fingers, pinch*.

### *To Move an App/Create a Folder*

To move an app on the Home screen with VoiceOver on, tap, drag or flick to the desired app. Hear the app’s name, then *1 finger, double tap and hold*. (All the apps will Jiggle.) You will hear the name of the app then “moving \_\_\_\_\_” (name of app). Drag the app to the desired location.

If creating a folder, drag the first app on top of the second app. VoiceOver will say “moving \_\_\_\_\_ (first app name) on \_\_\_\_\_” (second app name). Click the Home button one time to exit Jiggle mode.

### *To Move Between Home Pages with VoiceOver*

To move between Home pages, use the *3 fingers, swipe left or right*.



## Activity 3.2b Opening/Closing App, Create a Folder with VoiceOver

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You can choose to use the 1 finger, drag then split tap or you can use 1 finger, swipe then double tap. We recommend the 1 finger, drag then split tap; dragging the finger around the screen helps to teach the spatial layout and is more efficient for many students.

1. Go to the Home screen: (Press the Home button one time).
2. Find Notes: (1 finger, drag until you find Notes).
3. Launch Notes: (split tap). Remember, you must hear the words “Notes” before you split tap!
4. Close Notes: (Press the Home button one time).
5. Launch/close Settings: (repeat steps 1-4).
6. Move Photos: (1 finger, drag until you hear “Photos” then double tap and hold, Photos). You will hear “Moving Photos”. Drag Photos across the screen.
7. Combine Photos and Camera to make a folder: (Repeat step 6; drag Photos on top of Camera).
8. Exit jiggle mode: (click Home button one time).

## 3.3 Expose/Dismiss the Search Screen, Notification Center, & Control Center

### *Expose the Search Screen with VoiceOver*

Tap the middle of the screen to make sure that the VoiceOver cursor is on the page. Use the three fingers, swipe right to expose the Search Field. You must double tap to edit, before you can type in your desired search. Use the Search textbox to quickly locate things on your iPad: any app, emails by a specific person or title of the email, title of a document and more. Note: If you type the word “camera”, the Camera app will appear first and then any emails that contain the word “camera” in the email title. If you have “camera” on your calendar, that calendar appointment will also appear.

The Search screen now includes the most recent people you have been in contact with, the most recent apps used, nearby destinations, and latest news items.

To exit the Search Field, press the Home button or three finger swipe left.

### *Expose the Notification Center with VoiceOver*

Tap the Status bar at the very top of the screen to make sure that the VoiceOver cursor is on the Status bar. Use the three fingers, swipe down to expose the Notification Center. To exit the Notification Center, press the Home button.

The notification center includes the date, weather, calendar, and notifications of emails and texts that you have not read.

### *To Expose the Control Center with VoiceOver*

Tap the Status bar at the very top of the screen to make sure that the VoiceOver cursor is on the Status bar. Use the three fingers, swipe up to expose the Control Center. To exit the Control Center, press the Home button.

The Control Center is a quick way to change frequently used options, including: Play (music, video, book, etc.) volume, airplane mode, Wi-Fi, Bluetooth, Do Not Disturb, Lock Orientation, brightness, AirDrop, AirPlay, Clock and Camera.

### Activity 3.3 Search, View Notifications and View Control Center

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1. Go to the Home screen: (Press the Home button one time).
2. Expose the Search Screen: (1 finger, tap in the middle of the screen; 3 fingers, swipe right).
3. Find and open camera app: (type in “camera” then swipe right multiple times stopping on camera; double tap to open).
4. Go to Home screen: (Press the Home button one time).
5. Check the weather and your calendar:
  - Open Notification Center: (1 finger, drag to the Status bar; 3 fingers swipe down)
  - Read your personal Notifications
6. Go to Home screen: (Press the Home button one time).
7. Change the brightness of your iPad;
  - Open Control Center: (1 finger, drag to the Status bar; 3 fingers swipe up)
  - Decrease brightness: (1 finger, drag to bottom right corner)
  - 1 finger swipe down multiple times
8. Go to Home screen: (Press the Home button one time).

### 3.4 Screen Curtain/Speech On & Off

The Screen Curtain turns the screen black, allowing VoiceOver users to use the iPad with privacy. To activate the screen curtain on or off, 3 fingers, triple tap. **If VoiceOver and Zoom are both on, then the Screen Curtain gesture will change to 3 fingers, four taps.** VoiceOver continues to work and the iPad continues to run even when the screen curtain has made the screen black. The screen curtain is only available when VoiceOver is on.

***TEACHER HINT: THIS IS PARTICULARLY USEFUL DURING QUIZZES AND TESTS. WITH THE SCREEN CURTAIN ON, NEIGHBORING STUDENTS CANNOT GLEAN ANSWERS FROM THE BLIND STUDENT'S IPAD.***

VoiceOver's Speech can be turned on and off with a 3 fingers, double tap. If VoiceOver and Zoom are both on, then the speech gesture will change to 3 fingers, triple tap. (When Zoom is on, 3 fingers, double tap Zooms in/out.

***TEACHER HINT: BRAILLE STUDENTS CAN PRACTICE THEIR BRAILLE SKILLS BY USING A REFRESHABLE BRAILLE DEVICE WITH SPEECH OFF. THIS ENABLES THE BRAILLE STUDENT TO READ THE ELECTRONIC BRAILLE WITHOUT HEARING VOICEOVER.***

Some apps that have built in auditory/speech, the student might prefer to turn off the VoiceOver speech. However, if the VoiceOver speech is turned off, the refreshable braille display will not show the braille. (Example: Using the auditory reader in Read2Go will automatically turn off VoiceOver, which also disables the braille output on a refreshable braille display.)

***TEACHER HINT: YOU WILL WANT TO REMEMBER THESE COMMANDS AS YOUR SCREEN AND/OR SPEECH WILL ACCIDENTALLY BE TURNED OFF AT SOME POINT!***

## Activity 3.4 Turn On/Off the Screen Curtain and Speech

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Complete this activity with Zoom Off.

1. Turn on the Screen Curtain: (3 fingers, triple tap).
2. Launch Safari: (4 fingers, tap at the bottom of the screen or 1 finger, drag to bottom right corner and split tap on Safari).
3. Go to Home screen: (Press the Home button one time).
4. Turn off the Screen Curtain: (3 fingers, triple tap).

If you can visually locate Notes:

5. Turn Speech off: (3 fingers, double tap).
6. Launch Notes: (1 finger, drag and split tap).
7. Turn Speech on: (3 fingers, double tap).
8. Return to the Home screen: (Press the Home button).

### 3.5 Basic Rotor Setting: Speech Rate

The rotor is a virtual control that acts like a physical dial when VoiceOver is on. Use the Rotor to change VoiceOver settings and to access additional commands and features. In this section we will use the basic Rotor commands in order to slow down/speed up the speech rate and to change the typing mode. The Rotor is only accessible when VoiceOver is on.

To access the Rotor, Triple-Click Home and turn VoiceOver on. Then, place your thumb and index finger (or any two fingers) on the iPad's screen and rotate those fingers like you are turning an old-fashioned dial. A small pop-up appears for a few seconds only. You will hear unique clicking sounds along with the name of the selected Rotor setting. Turn the dial again, to hear the name of the next setting. Once you are on the desired Rotor setting, flick up or down to change that setting. The Rotor remains on the last selected Rotor option – you cannot “exit” or turn off the Rotor. Example: Change the Rotor to Speech Rate. When on Speech Rate, a swipe up will increase the speech rate and a swipe down will decrease the speech rate.

Remember, we selected our Rotor options at the very beginning of this manual (see Rotor Settings section in the Settings Module). You may change your Rotor options to meet your needs. You will have different rotor options according to what is available in the app you are currently using.

### Activity 3.5 Speech Rate Rotor Setting

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1. Go to the Home screen: (Press the Home button one time).
2. Launch Safari: (4 fingers, tap at the bottom of the screen to find Safari then activate Safari).
3. Open tab “Intro to Willie the Seeing Eye Dog”: (Activate the “Seeing Eye . . .” tab).
4. Open Reader: (Activate the Reader button in Tool Bar).
5. Using the Rotor, change the speech rate to 100%: (2 fingers, Rotor dial then 1 finger, flick up multiple times until you reach 100%).
6. Read All at 100%: (2 fingers, flick up).
7. Pause reading: (2 finger, single tap).
8. Using the Rotor, change the speech back to 40%: (1 Finger, flick down until you reach 40%; if your Rotor is no longer on Speech Rate, use the two finger dial, stopping on Speech Rate).
9. Read All at 40%: (2 fingers, flick up).
10. Pause reading: (2 finger, single tap).
11. Using the Rotor, set typing mode to Standard Typing: (2 fingers, Rotor dial then 1 finger, flick down until you reach Standard Typing).

***TEACHER HINT: STUDENTS WITH VISUAL IMPAIRMENTS TYPICALLY REQUIRE ADDITIONAL TIME TO READ USING LARGE PRINT AND/OR BRAILLE. BY HIGH SCHOOL, THE SHEER AMOUNT OF TIME AND ENERGY THAT IS REQUIRED TO COMPLETE HOMEWORK IS OVERWHELMING, NOT TO MENTION THE FATIGUE AND HEADACHES THAT MANY LOW VISION STUDENTS HAVE TO DEAL WITH WHEN READING LARGE AMOUNTS OF TEXT. LEARNING TO LISTEN, ESPECIALLY LEARNING TO “SPEED LISTEN” IS A SKILL THAT MOST STUDENTS WITH VISUAL IMPAIRMENTS CAN DO FASTER THAN THEIR SIGHTED PEERS.***

***ENCOURAGE STUDENTS TO LISTEN AND COMPREHEND AT FASTER LEVELS. HAVE THE STUDENT INCREASE THEIR LISTENING SPEEDS BY LISTENING TO A SECTION OF TEXT ONCE AT NORMAL SPEED, THEN LISTEN TO THE SAME SECTION AT A FASTER SPEED, THEN ONCE MORE AT AN EVEN FASTER SPEED. DECREASE THE SPEED BACK ONE SETTING SLOWER; NOW THE STUDENT SHOULD BE ABLE TO COMPREHEND THE NEW, SLIGHTLY FASTER SPEECH RATE.***

## 3.6 Basic Rotor Setting: Typing Modes

When using the on-screen keyboard, you can drag your finger across the QWERTY style keyboard, hearing each letter spoken as your finger *drags* across the letter. Stop when you find the desired letter, and split tap to select that letter. You can also swipe to move through the letters. Stop when you find the desired letter and double tap anywhere on the screen. To access the numbers or additional symbols, select the “more numbers” key immediately to the right of the space bar or at the bottom left corner of the screen. A new on-screen keyboard with numbers and some symbols will appear. If you want more symbols (+, =, brackets, greater than sign, etc.) then tap on the “more symbols” key, which is on the left side just above the “more numbers” key when you are in the numbers keyboard. Remember, you also have the option of using “Dictate” - the built-in speech to text. The Dictate key – which looks like a microphone - is located immediately to the left of the space bar. (Dictate is only available with iPad 3 or above. Dictate also requires Internet; if the Dictate key is dimmed, that indicates that you are not connected to the Internet.)

VoiceOver has three typing modes

- Standard Typing: Standard Typing is the same as the normal VoiceOver gesture. Tap, drag or flick to the letter to hear the letter name, and then double tap or split tap.
- Touch Typing: Touch Typing allows you to drag your finger across the keys, stopping at the desired letter. When you lift your finger, the letter is typed. For most people, this is the faster way to type using VoiceOver and the on-screen keyboard.
- Direct Typing: Direct Typing is the normal way of typing: tap on a letter to type. Students with some functional vision typically use this mode. Students with strong spatial awareness and typing skills may also use this typing mode.

### *Notes with VoiceOver*

Launch the Notes app. The Notes screen is divided into two parts. The left third of the screen is a column with Accounts Back button at the top left. Below the Accounts Back button is the Search field. Below the Search field is a list of each previously created Note. On the right 2/3<sup>rd</sup>s of the screen is the actual notepad that is automatically opened to the last used Note.

To move the cursor to the text in the notepad, start at the top middle of the right side (time in the Status bar) and drag your finger down the screen until you locate the first sentence. To begin editing a document, double tap anywhere on the right side of the screen. This will also bring up the on-screen keyboard.



### Activity 3.6a Standard Typing Mode in Notes

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1. Launch Notes: (Activate Notes).
2. Compose a new Note: (1 finger, drag to the Tool bar at the top of the page then drag to the top right corner of the screen. VoiceOver will state, "Compose button". Activate the Compose button. VoiceOver will state, "Compose Note, text field is editing").
3. Edit Text field: (If the on-screen keyboard or the cursor is hidden, tap the right hand side of the screen).
4. Using the Rotor, change to Touch Typing: (2 fingers, Rotor dial then 1 finger, flick down until you hear Touch Typing).
5. Type "The duck" using Standard Typing: (1 finger, drag to desired letter then 1 finger, double tap).
6. Move cursor to the beginning of your name: (1 finger, double tap).

### Activity 3.6b Touch Typing Mode in Notes

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1. Change the Rotor to Touch Typing: (1 finger, flick down until you hear Touch Typing; if you are not still on Typing Mode, use 2 fingers and rotate until the Rotor is on Typing Mode).
2. Continue the sentence by typing "swims in" (1 finger, drag to the desired letter, then lift your finger).
3. Move cursor to the beginning of "The duck swims in": (1 finger, double tap).
4. Move cursor to the end of "The duck swims in": 1 finger, double tap).

### Activity 3.6 Direct Typing Mode in Notes

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1. Change the Rotor to Direct Typing: (1 finger, flick down).
2. Continue typing the sentence "the pond": (Tap on the desired letters).
3. Change the typing mode to Touch Typing: (1 finger, flick down stopping on Touch Typing).

\*Keep Notes open as we will use Notes in the next activity.

***TEACHER HINT: TYPING WITH THE ON-SCREEN KEYBOARD IS CERTAINLY POSSIBLE FOR LOW VISION AND TOTALLY BLIND STUDENTS. HOWEVER, IT IS NOT THE MOST EFFICIENT METHOD OF TYPING. WE STRONGLY RECOMMEND THAT LOW VISION STUDENTS LEARN TO USE A BLUETOOTH KEYBOARD WITH VOICEOVER. VOICEOVER GIVES THE EXTRA AUDITORY INPUT THAT HELPS TO ELIMINATE FATIGUE AND ALSO INCREASES SPEED. VOICEOVER PAIRED WITH THE BLUETOOTH KEYBOARD PROVIDES ADDITIONAL KEYBOARD COMMANDS THAT ALLOW THE LOW VISION/BLIND USER TO NAVIGATE THE IPAD WITHOUT TOUCHING THE SCREEN. FOR BRAILLE USERS, THE REFRESHABLE BRAILLE DISPLAY, WHICH IS ALSO USED WITH VOICEOVER, HAS SIMILAR COMMANDS TO DRIVE THE IPAD. THE REFRESHABLE BRAILLE DISPLAY ALLOWS THE BRAILLE USER TO INPUT TEXT USING THE TRADITIONAL PERKINS 6 KEY KEYBOARD AND PROVIDES INSTANT BRAILLE FOR THOSE WHO PREFER TACTILE OUTPUT. BRAILLE READERS SHOULD ALSO TRANSITION TO USING A BLUETOOTH KEYBOARD.***

## 3.7 Basic Rotor Setting: Navigating and Editing

In this section we will use the basic rotor commands to easily edit documents. The Rotor has options of reading by “lines” (reading one print line at a time), by “words” (reading one word only), and by “characters” (reading one letter/character at a time). If you want to insert a word between two other words, then select the “words” Rotor setting; if you want to check the spelling, proofread or edit a misspelled word, then select “characters” Rotor setting. Reading by lines is not always available.

To move the cursor to the beginning of the document, 1 finger, double tap anyplace on the right side of the screen; VoiceOver will state, “Insertion point at start”. To move the cursor to the end of the document, 1 finger, double tap again anyplace on the right side of the screen; VoiceOver will state, “Insertion point at end”. The 1 finger, double tap will move the cursor back and forth between the beginning and the end of the document.

### *Edit Notes using the Rotor settings*

When in the document that you want to edit, you will access the Rotor settings by placing your two fingers on the screen and rotate your fingers like you are turning a dial. Continue to rotate your fingers until you hear the desired setting. Once on that correct Rotor setting, flick up or down to change that setting. Example: if you want to edit a misspelled word, you will use the turn the Rotor, stopping on “characters”. To move from letter to letter, flick down multiple times. Each flick down will move one character to the right; each flick up will move one character to the left. Continue to flick down/up until you move to the correct insertion/deletion point. Once you are in position, then use the on-screen keyboard to delete the wrong letter or to type the correct letter.

1. You should be on the Note document, "The duck swims in the pond."
2. Read the document: (Starting at the top middle of the screen, drag finger down stopping on the text, "The duck swims in the pond").
3. Activate the text field: (1 finger, double tap anywhere on the right side of screen).
4. Move cursor to end of the text: (1 finger, double tap).
5. Move the cursor to the beginning of the text: (1 finger, double tap).
6. Edit document from: "The duck swims in the pond."  
to: "The ducks swim in the pond."
  - Change Rotor to Characters: (Rotor dial, stop on Characters).
  - Move to the "k" in "duck": (1 finger, flick down multiple times stopping at "k").
  - Type "s": (1 finger, drag to find "s", then lift finger).
  - Move to the "s" in the word "swims": (1 finger, flick down multiple times until you hear the second "s").
  - Delete the second "s" in "swims": (1 finger, drag to Delete key; then lift the finger).
7. Insert the word "yellow" before "duck": (Rotor dial, stop on Words).
  - a. Move to the word "duck": (1 finger, flick up multiple times stopping at "duck").
  - b. Type the word "yellow": (1 finger, drag to find "y", then lift finger. Repeat for each letter).

## 3.8 Rotor Settings to Select Text and to Manipulate Text

### *Text Selection Rotor Setting*

Text Select is new in iOS 9. This is a simple way to select text when using VoiceOver. Simply move the cursor to the left of the desired character or word. Set the Rotor to Text Selection. Swipe down to choose the increment: Character, Word, Line, Page or Select All. Swipe right to select the text by the desired increments. Swipe left to decrease the selected text.

### *Manipulating Text*

Once the text is selected, change the Rotor to Edit. Swipe down to choose the action: Copy, Cut, Paste, Define and Share. When on the desired action, double tap to activate the action.

**TEACHER HINT: IT IS SIGNIFICANTLY EASIER TO MANIPULATE TEXT WITH A BLUETOOTH KEYBOARD OR REFRESHABLE BRAILLE DISPLAY, AS THERE ARE QUICK COMMANDS FOR COPY, CUT AND PASTE INSTEAD OF USING THE ROTOR TO MANIPULATE TEXT.**

### *Activity 3.8 Manipulating Text*

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1. You should be on the Note document, “The duck swims in the pond.”
2. Select “swims in”:
  - Move the cursor to the end of the sentence: (Double tap – Insertion point at end)
  - Move cursor to the left of “swims”:  
(Set Rotor to Words then swipe up multiple times)
  - Select “swims in”:  
(Set Rotor to Text Selection; swipe down stopping on Words, swipe right two times)
  - Cut “swims in”:  
(Set Rotor to Edit; Swipe down stopping on Cut then double tap)
  - Paste “swims in”:  
(Swipe down stopping on Paste then double tap)

## 3.9 Basic Rotor Setting: Safari

In this section, we will use the basic Rotor settings used to navigate the Internet. These Rotor settings are:

- Containers: Containers are regions within an application e.g. Home screen, page numbers and Dock are containers on the Home screen; Notes has the container on the left side of the page and the document area on the right side. \* Containers allows VoiceOver users to quickly navigate documents.
- Headings: Headings are typically the bold, large print, main headings on the visual page.
- Links: Links are the URL links that take you to additional web pages.
- Text fields: Text fields allow you to type – typically used to search or answer questions.
- Lists: Lists are items that are displayed in a list format.
- Tables: Tables are information displayed in a table format.
- Form Controls: Form Controls are interactive elements in a web page, such as edit boxes, checkboxes, and radio buttons.
- Punctuation: VoiceOver can be set to verbalize punctuation such as the word “period”.

When you have opened a web page and turn the Rotor, VoiceOver will say the Rotor setting and then announce the number of those items on that specific web page. Example: VoiceOver will say “Headings”, slight pause, then “10 Headings”. That tells you there are 10 Headings listed on this specific web page. When the Rotor is set to Headings, 1 finger, flick down will jump from heading to heading skipping the items in between. This is a great way to preview or skim what is on the page or to quickly locate the specific information you are looking for.

For example, on the DOGO News web page, if you want to find out what the articles are, use the Rotor dial to access Headings then 1 finger, flick down will take you to “Kids News – Current Events; Heading Level 1”; the next flick down might take you to “Winning at All Costs; Heading Level 3, Link” (Heading Level 3 indicates it is an article; Link indicates a link to a web page); another flick down might take you to “Emperor Penguins; Heading Level 3, Link”. When you hear the desired title and link, activate by double tapping anywhere on the screen. The iPad will make a clicking sound as the web page loads and VoiceOver will say, “Web page loaded” when it is done loading.

Not all web pages are designed according to accessibility standards. Websites that correctly use headings are much easier to navigate.

After loading an article, sometimes there will be a “Reader” option. VoiceOver will say, “Reader Available” if the Reader option is available. If selected, the Reader option creates a full screen window with only the article/document that you selected; the Reader option takes away all the other articles, related links, pictures, advertisements, etc. that normally crowd the web page. To activate the Reader option, when VoiceOver says, “Reader”, use a 1 finger, double tap. (The Reader button is located in Tool bar at the top of the screen between the Share button and the

Address button. To exit the Reader, activate the Reader button again. The Reader is not always available; if it not available, VoiceOver will not say anything and the Reader button will not appear in the Tool bar. Once the Reader button has been activated, use a 1 finger, drag stopping on the article text. Use two fingers, flick down to begin reading the article.

### Activity 3.9 Using the Rotor settings to Navigate Web Pages

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1. Launch Safari: (Find Safari, activate).
2. Locate the New Tab button: (1 finger, drag to the top right corner of the screen and activate).
3. Locate the Address button: (Right flick to Address, Search or enter website by name, edit URL”).
4. Type DOGO News: (Type “DoGo News” or tap on “dogonews.com. . .” tab).
5. Open DOGO News web page (first option): (Right swipe to DOGO News, first link on the page and activate).
6. Use the Rotor to select the Headings setting: (2 fingers, Rotor dial, stopping on Headings).
7. Find third article title under Current Events: (1 finger, flick down stopping on the third article title). \*If no Headings are announced, right flick once or twice and try to move by Headings again.
8. Open third article: (Activate).
  - \*You will hear unique clicking sounds as webpage loads. VoiceOver will say, “Web page loaded” when the page is fully loaded and “Reader Available” if the Reader is available.
9. If available, select Reader option: (1 finger, drag to top, middle of the Screen; or, f finger, tap at the top of the page, then several right flicks. Reader is located to the left of the website address. Activate).
10. Read article: (2 fingers, swipe down).
11. Exit article: (2 fingers, scrub).
  - \*Scrub is 2 fingers, rapid back and forth movement.

## 3.10 iBooks

iBooks, a free app, is an amazing way to download and read books. You can choose textbooks, interactive touch books, best sellers or your favorite classics. Within iBooks you can quickly change the font size, font, brightness, or have VoiceOver read the book out loud. You can highlight or underline text, bookmark passages, make notes, look up a word in the dictionary or on the web, and search for words within the book.

iBooks offers interactive, “multi-touch” books and textbooks with built-in tools to help students review what they have learned. In textbooks such as E.O. Wilson’s *Life on Earth*, students can highlight text, scribble notes, create personalized flash cards, access glossary terms, and more. These digital textbooks can have imbedded videos, interactive diagrams, study cards, and built-in quizzes.

All your purchased iBooks will be stored in the iCloud, allowing you to download and read the book on any of your synched iOS devices. iBooks is a free Apple app that must be downloaded from the App Store.

You will need to know your Apple ID and Apple password in order to download free or paid iBooks.

### *iBooks with VoiceOver*

iBooks is a free eBook reader app that is fully compatible with VoiceOver. iBooks can open ePub books and PDF documents. After you have launched iBooks and have opened a book, use these VoiceOver gestures:

- Read all from the top of the page: (2 finger, flick up).
- Read all from the current position: (2 finger, flick down).
- Stop or re-start reading: (2 finger, tap).
- Move to the next page: (3 finger, swipe left).
- Move to the last page: (3 finger, swipe right).
- Page Chooser: (find Page Chooser at the bottom of the page then 1 finger, double tap and hold, then drag left or right. Or Find Page Chooser at the bottom of the page and 1 finger, flick down to move forward by even pages or 1 finger, swipe up to move backwards by odd numbers).

### *iBooks with Low Vision*

Within the book are built-in low vision features. In non-interactive books, you can still change the font, font size, brightness and themes (white/sepia/night background colors or book/full screen/scroll layout features). Turn on scrolling view here, if desired. Tap the “Appearance” button in the tool bar. This button image has a small and large sized “A”.



## *Highlight Text (without VoiceOver)*

There are two ways to create a Note.

Method 1: *Double tap* on the desired word; the word will become highlighted and a popup box will appear above the word. If a phrase, sentence or paragraph is desired, drag the circles on either end of the word until that phrase, sentence or paragraph is highlighted. The popup options are:

Speak, Copy, Define, Highlight, Note, Search, Share

Method 2: Touch and Hold on the desired word until the magnifying glass appears; drag your finger to include additional highlighted words. Release your finger. Tap on the highlighted words and a popup appears with the options including the color of your highlight:

Colors, Delete, Note, Share, (arrow)

Tap on the arrow and the following options appear:

Speak, Copy, Define, Highlight, Note, Search, Share

Speak: Double tap on a word to have the word spoken out loud. When selected, Speak will say out loud the highlighted word, phrase, sentence or paragraph. If you have previously selected another language in settings, you will have the option of having the word spoken in English or the previously selected language.

Copy: The Copy option enables you to quickly copy and then paste the highlighted section in another place, such as in a document or email.

Define: Define will give a dictionary listing of the word and will give you additional options to search the web or search Wikipedia for that word.

Search: Enables you to search for the selected word or phrase within this book or to search the web.

Share: Enables you to easily share (mail, message, copy, and more) the selected text.

Highlight: Highlight enables the student to take notes in various colors and to create sticky notes along with flash cards. Once the words are highlighted, tap on the highlighted area and a popup bar appears with the options of:

Color options, Underline, Delete, Note, Share, (Arrow)

Note: The Note option creates a sticky note, allowing the student to create personalized notes. A sticky note symbol (colored square) is placed in the side margin of the page. Tap on the sticky note symbol to access the student's personalized note. Sticky notes can be modified at any time. In *multi-touch textbooks*, the word(s) that is highlighted will automatically be placed on

the front of a flashcard and the personalized student note will be placed on the back of the flashcard. These flashcards – called Study Cards - will be available under Notes in the Tool Bar.

### Activity 3.10a Create a Note

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1. Launch iBooks: (tap on iBooks).
2. Open A Very Wimpy Kid book: (In the bookshelf, tap on book cover).
3. Read the first few pages: (1 finger, swipe left to turn the page).
4. Highlight a word to define (such as “disgusting”): (1 finger, touch and hold until magnifier appears, then drag across desired word/phrase).
5. Access options: (Tap on highlighted word/words). Popup appears.
6. Create a note: (Tap on note symbol).
7. Type the definition of the word: (“Unpleasant or offensive”).
8. Close the note: (Tap outside of the box).
9. Highlight a phrase: (1 finger, touch and hold until magnifier appears, then drag across desired word/phrase).
10. Access options: (Tap on highlighted word/words). Popup appears.
11. Erase second highlight: (Tap delete symbol – trashcan).
12. View the first note: (Tap on the sticky note in the margin).
13. Close the note: (Tap outside the popup box).
14. View the Notes organized by chapter:
  - Tap on the Table of Content button in the tool bar at the top left of the page).
  - Open the Notes page: (Tap on Notes at the top of the page on the right side).
15. Go back to your place in the book: (Tap on Resume button in the tool bar on the left).

### Glossary

Multi-touch **textbooks** in iBooks have a built-in glossary and built-in Study Cards. Built-in glossary terms will be underlined in the text. Simply tap on an underlined word and the glossary popup appears with a definition of that word.

You can take your own notes and create your own Study Cards. Follow the steps in activity above to create a note. Study Cards (digital flashcards) are automatically generated when you create a note; glossary terms have also been made into Study Cards.

To access the glossary, tap on the Table of Contents located in the Tool bar second button from the left. A popup appears with the choices Table of Contents and Glossary. When Glossary is selected, the left column on the screen will list the terms in alphabetical order. The main portion of the screen will show the selected term and definition. The bottom of the main portion of the page lists the “index” and chapter number where that particular glossary term is found in the text. Tap on the Chapter number to go directly to the page within the text where that glossary term is located.

## My Notes

The Notes button is located in the Tool Bar to the right of the Table of Contents button. When My Notes is opened, the left 1/3<sup>rd</sup> of the screen lists each chapter. The right 2/3<sup>rd</sup>s of the screen displays all the notes that you created in that specific chapter. Beside each note is the corresponding page number. Tap the page number to go directly to that page. To exit the My Notes screen, tap the Done button in the top right corner.

## Study Cards

From the Notes Screen (see Notes above) In the Tool bar above the right 2/3<sup>rd</sup>s of the screen, is Study Cards button. The Study Cards are flashcards of the glossary terms – these glossary Study Cards come with the textbook. You can also create your own Study Cards when you highlight text in the chapter and then create a note. This automatically creates personal Study Cards.

Tap the Study Card to see the definition on the back. Tap the card again to see the term on the front. Use a 1 finger swipe, to move to the next Study Card. Tap the Done button in the top right corner to exit the Study Cards. Tap the done button in the top right corner to exit My Notes.

## Activity 3.10b Create a Note and Study Card

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1. Launch iBooks.
2. In the bookshelf, open *Reach for the Stars*: (Tap the textbook).
3. Expose the Tool Bar: (Tap anywhere on the screen except on the Status Bar).
4. Open Search Field: (Tap on Search Field - magnifying glass symbol).
5. Type “Edwin Hubble”: (Popup appears with the glossary term and text references from the textbook).
6. Select first text reference: (Tap on first text reference; this will take you to page 20).
7. Highlight the “Edwin Hubble”: (1 finger, touch and hold until magnifier pops up, then drag finger over the desired text).
8. Expose option bar: (Tap on highlighted area).
9. Select Note and type “1889-1953 US astronomer who studied the galaxies.”: (Tap on note and type. When finished, tap outside the popup (but NOT on the picture!) The note symbol will appear beside the highlighted text).
10. Expose Tool Bar: (Tap anywhere on the screen).
11. Select Note: (Tap on Note button in the Tool Bar).
12. View your note in the Notes screen.
13. Open Study Cards: (Tap on Study Cards in the Notes’ Tool Bar).
14. Go through Study Cards until you find “Edwin Hubble”; (1 finger swipe multiple times, stopping on “Edwin Hubble”).
15. Exit Study Cards: (Tap on Done button).
16. Exit My Notes: (Tap on Done button).

Free iBooks:

*Edwin the Super Duper Otter* by the Seattle Aquarium is an interactive iBook with videos and questions. (Geared for elementary students but enjoyed for everyone!)

*A Very Wimpy Kid* by Lee Ivory is a favorite middle school book. Practice highlight and taking notes with this book.

*Reach for the Stars* by Ada Lopez, Elena Sabbi and Ed Summers is a fully accessible, interactive textbook complete with videos, read aloud, questions, notes, flash cards and interactive diagrams. For more information on how to access the interactive images using VoiceOver, go to [Reach for the Stars Teacher Accessibility Tutorial](#) video.

<https://www.youtube.com/watch?v=-AheMP0oS2A>

The Paths to Technology website has an iBook resource section of educational iBooks that teachers have created and shared! In the iBooks section of the website, there are directions on how to create your own iBooks.

### 3.11 Pairing iPad with APH 18 Refreshabaille

The APH Refreshabaille 18 is available to school districts through APH quota funds. “18” refers to the number of braille cells on this refreshable braille device. Refreshabaille 18 is one of many refreshable braille devices. Other refreshable braille devices may be larger to accommodate 40, 60, and 80 braille cells. The Refreshabaille 18 is a good choice for young students; refreshable braille devices with more cells might be a better choice for students who are reading/writing large amounts of text.

The Refreshabaille 18 connects to your iOS device, mobile device or desktop PC via USB or wireless Bluetooth interface. The Refreshabaille has a battery life of about 30 hours when connected via Bluetooth. You can have more than one Bluetooth device paired at the same time. You can also pair the same Bluetooth device to multiple iOS devices at the same time. The iPad, iPod Touch and iPhone have the same operating system; follow the same steps to pair the Refreshabaille with these iOS devices.

The iPad supports numerous brands of braille displays. Most braille displays will pair with the iPad using the same steps; however, a few braille notakers require additional setting changes on the braille device in order to pair. Different brands may have different pairing codes. Check your device’s manual or do an Internet search for details about your device.

*TEACHER HINT: PARTICIPANTS WILL PAIR THE REFRESHABLE BRAILLE DISPLAY AT THEIR OWN CONVENIENCE. THESE DIRECTIONS ARE FOR REFERENCE ONLY. IT IS NOT POSSIBLE TO SIMULTANEOUSLY TRY TO PAIR VARIOUS IPADS AND MULTIPLE APH 18 REFRESHABAILLES AT THE SAME TIME IN THE SAME ROOM.*

**To Pair a Refreshabraille 18 with an iPad:** Be sure that your Refreshabraille is charged before attempting to pair it.

1. From the Home Screen, tap on Settings.
2. Tap on General, located in the left column.
3. Tap on the right column. Tap on Accessibility.
4. On the Accessibility screen, Tap on VoiceOver, in the right column at the top. A new Accessibility screen appears.
5. Turn VoiceOver on by sliding or double tapping on the slider on/off button, in the right column at the top. VoiceOver must be turned on for the Refreshabraille to pair. Remember that VoiceOver changes the iPad's gestures.
6. Tap on Braille, in the right column slightly more than half way down the page. If a braille display is already paired, the serial number of the braille display will show beside the Braille button.)
7. When the VoiceOver Braille screen appears, the iPad will automatically search for a Bluetooth braille display. A small circle will be moving around and around as the iPad searches.
8. When the Refreshabraille is discovered, the name of the device and number will appear.
9. Tap on Refreshabraille with its unique number.
10. The on-screen keyboard appears on the iPad. QUICKLY type in the Refreshabraille code: 1234. (All APH Refreshabraille 18 devices have the code 1234.) Remember, VoiceOver is on, so you must touch the number, VO says the number, then you double tap or split tap to select that number. You must quickly type in the code or it will not pair!)

For a video and more information on how to pair the APH 18 Refreshabraille with the iPad, go to Diane Brauner YouTube channel, and select [Using a Refreshable Braille Device with an iPad](#). To view more videos about using a refreshable braille device with an iPad, go to Diane Brauner YouTube, select Playlist and then select Using a Refreshable Braille Device with an iPad.

*TEACHER HINT: IF YOU WERE UNSUCCESSFUL WITH YOUR FIRST ATTEMPT TO PAIR THE REFRESHABRAILLE AND THE SERIAL NUMBER DOES NOT APPEAR ON THE SCREEN AGAIN, YOU WILL NEED TO COMPLETELY TURN OFF YOUR IOS DEVICE BEFORE TRYING TO PAIR AGAIN. YOU WILL NEED TO DO A "HARD RESET". (SEE "HARD STOP/REBOOT THE IPAD", IN THE SECTION BELOW FOR DIRECTIONS).*

More than one Refreshabaille can be paired with the iPad at the same time. The checkmark beside the name and number of the device indicates which device is currently being used.

Disconnect a Refreshabaille 18 from an iPad:

1. Repeat steps 1-9 above.
2. Tap the arrow to the right of the device name and number.
3. Tap on Forget this Device.

If you are pairing another type of refreshable braille display (such as the Apex), there may be additional steps. You can do an Internet search to learn how to pair other devices and to locate the pairing code for different types of devices.

## 3.12 Brief Introduction to APH 18 Refreshabraille

This is a very brief introduction about using the refreshable braille display paired with the iPad. More detailed instruction is available as a full day training available on the refreshable braille display. To see a complete listing of refreshable braille display commands, please refer to the Quick Reference Guide for iOS Devices:

<http://support.sas.com/misc/accessibility/education/ios/quickref.html>

“Chord” means pressing the space button simultaneously with the braille keys. Example: “H-chord” means pressing the keys that produce the braille letter “H” and the space bar – all the same time (dots 1,2,5, space bar).

When producing Grade II braille, you must quickly type the word followed by a space bar or punctuation (such as period). If you are too slow, the letter will automatically convert to a whole word contraction. Teach your student to think about spelling the entire word *before* he/she starts to braille the word.

There are a variety of refreshable braille displays. Some refreshable braille displays – such as the APH 18 Refreshabraille have a joystick; while other refreshable braille displays do not have a joystick. Even when a joystick is available, some students are more efficient with the chord commands than with the joystick.

### Chord Commands that Match the Joystick Commands

Swipe right is 4-chord

Swipe left is 1-chord

Swipe down is 6-chord (adjusts value defined by current Rotor setting)

Swipe up is 1-chord (adjusts value defined by current Rotor setting)

Activate/push joystick in is 3,6-chord

### Commands for Editing

- Delete (*D-chord*)
- When editing, you must change to *uncontracted* (*G-chord*)
- Move cursor to desired location for editing (push routing button below and one to the right of desired character)
- Mute speech for braille only; (*M-chord*)



### Activity 3.12 RBD – Open Pages, Start/Pause Reading

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1. Go to Home screen: (H-chord).
2. Locate and launch Notes: (Joystick swipe right, stopping on Notes; push in joystick).
3. Move VoiceOver cursor to the text on the right 2/3<sup>rd</sup> of the screen: (1 finger, drag to the top of the right side of the screen).
4. Read all: (R-chord).
5. Pause reading: (P-chord).
6. Toggle between the beginning and end of the document: (push in joystick; push in joystick again).
7. Type your name at the end of the document: (type your name).
8. Type in a sentence, make corrections as needed: (type in “Braille is fun.”).
  - Use the D Chord to delete, if needed

### 3.13 Hard Reset/Reboot the iPad

The iPad, like any computer or cellular phone, will periodically need a Hard Reset (also called a Reboot). If your iPad slows down, freezes or demonstrates unusual behavior, perform a Hard Reset. Hold the Sleep/Wake button until a red arrow moves across the top of the screen. Slide the red arrow over. The iPad will totally shut down, causing a Hard Reset. Wait 2 or 3 minutes before turning the iPad back on by holding the Sleep/Wake button approximately 10 seconds until the Apple symbol appears on the screen. It will take a little time for the iPad to boot up again.