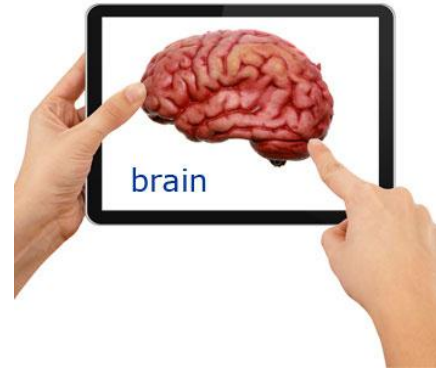




USE OF MOBILE TOUCH-SCREEN TECHNOLOGY IN STROKE REHAB



BY MEGAN SUTTON, MS,
RSLP, CCC-SLP (C)

Saturday, November 26, 2011
Stroke Recovery Association of BC

+ Tactus Therapy Solutions



- Founded in March 2011 as a BC Corporation
- Develops apps for adults with aphasia and other acquired speech, language and cognitive disorders
- All apps allow the therapist and individual an easy and automated way to practice evidence-based and traditional therapy activities with data tracking and e-mail reports
- All apps are user-friendly for use by elderly and impaired individuals
- 3 apps available now; watch for many more in the coming months
- www.tactustherapy.com

+ The Technology



- Tablets & Smart Phones
- APPLE
 - iPad
 - iPhone
 - iPod touch
- ANDROID Phones & Tablets (Linux)
- BLACKBERRY Phones & Playbook
- MICROSOFT Tablet PC



+ The iPad2

- Front and Rear Camera
- Speaker on Rear, Microphone on bottom
- 10 hour battery life
- \$519 for 16GB, wifi version
- iCloud saves apps and documents between devices
- 600 gram weight
- 9.5" x 7.3" size



+ The Advantages

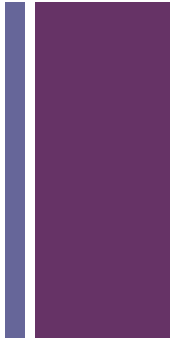
- Portable
- Intuitive
- Easy to Use
- Automated
- Less to Carry
- Available to the Public
- Cost-Efficient (Devices & Apps)
- Language Barrier Aid
- Cool
- Fun & Interactive
- Use Alone or with Support
- Accessories Available
- Built-in Microphone, Speaker, & Camera(s)
- Connect to Internet 2 ways
- Multi-Functional
- All Ages





The Apps

(Software Applications)



■ Speechy Apps

- AAC
- Language
- Reading
- Writing
- Speech
- Swallowing

■ General Purpose

- Education
- Communication
- Coordinator Support

■ OT-ish Apps

- Attention
- General Cognition
- Math
- Memory
- Problem Solving
- Cooking
- Motor Therapy

■ Recreation

+ iTunes



- Create an account on iTunes or on the App Store on your device
- Share apps purchased on this account among unlimited devices
- Use this account on up to 5 computers
- Use iTunes gift cards to avoid linking account to a credit card
- Update apps whenever updates are available to fix bugs and get new features
- Be cautious of free or Lite apps – most have ads or in-app purchase to get full functionality. Many apps are well worth a few dollars or more for quality content
- The Cloud – now apps and content can be synced wirelessly for access on all devices

+ Considerations

- Vision
- Dexterity
- Accuracy
- Level of Support (Therapist, Family, Technical Support)
- Appropriateness (matching goals)
- Confidentiality (stored patient data)
- Limits of Device (size, portability, volume, battery life)
- Maintenance (updating OS & apps, charging)





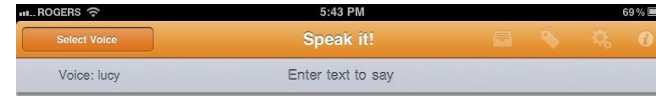
AAC

Augmentative & Alternative Communication

The Apps

- My Voice – uses GPS
- Proloquo2Go
- Scene Speak
- Verbally - text
- Touch Chat
- Answers HD Yes/ No
- Lingraphica SmallTalk
Aphasia & Others
- Speak it! Text to Speech

Speak it!



type or copy text in and this app will speak it. good for those who can write as well as those who need to have text read aloud to them



+ AAC

Advantages

- Portable
- Voice-Output
- Connected to Internet
- Cool
- Easy to Program
- Multi-functional
- More Affordable










Disadvantages

- Mounting – some options
- Battery Life – getting longer
- Volume insufficient for noisy environments
- Apps aren't as specialized as dedicated device software, but more are being converted
- Few apps are scannable for switch users
- Not covered by Insurance in some cases

+ Proloquo2go

I want a drink of Beer

Back a drink

 a drink of	 apple juice	 Beer	 cappuccino
 chocolate milk	 cider	 cocoa	 coffee
 Coke	 cranberry juice	 Diet Coke	 Dr. Pepper
 drink	 gatorade	 ginger ale	 grape juice

Navigation icons: Copy, Help, Home, Edit

+ Verbally



+ Language

The Apps

- AudioBooks
- ConversationCards
- Comprehension & Naming TherAppy
- Maps

Conversation Cards



+ Naming TherAppy



22/418



H _ _ _ _ _



+ Maps

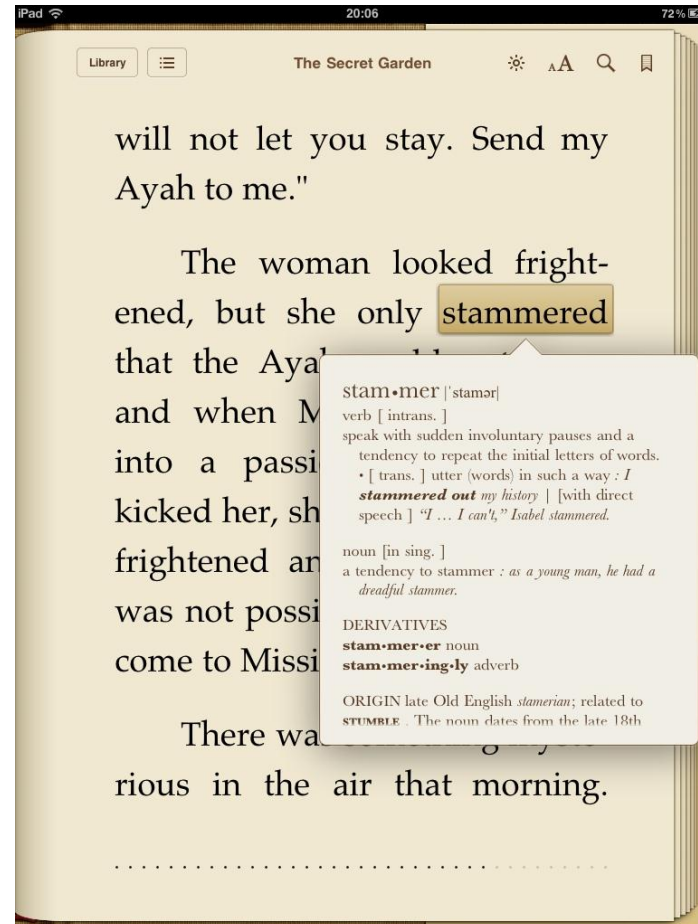


+ Reading

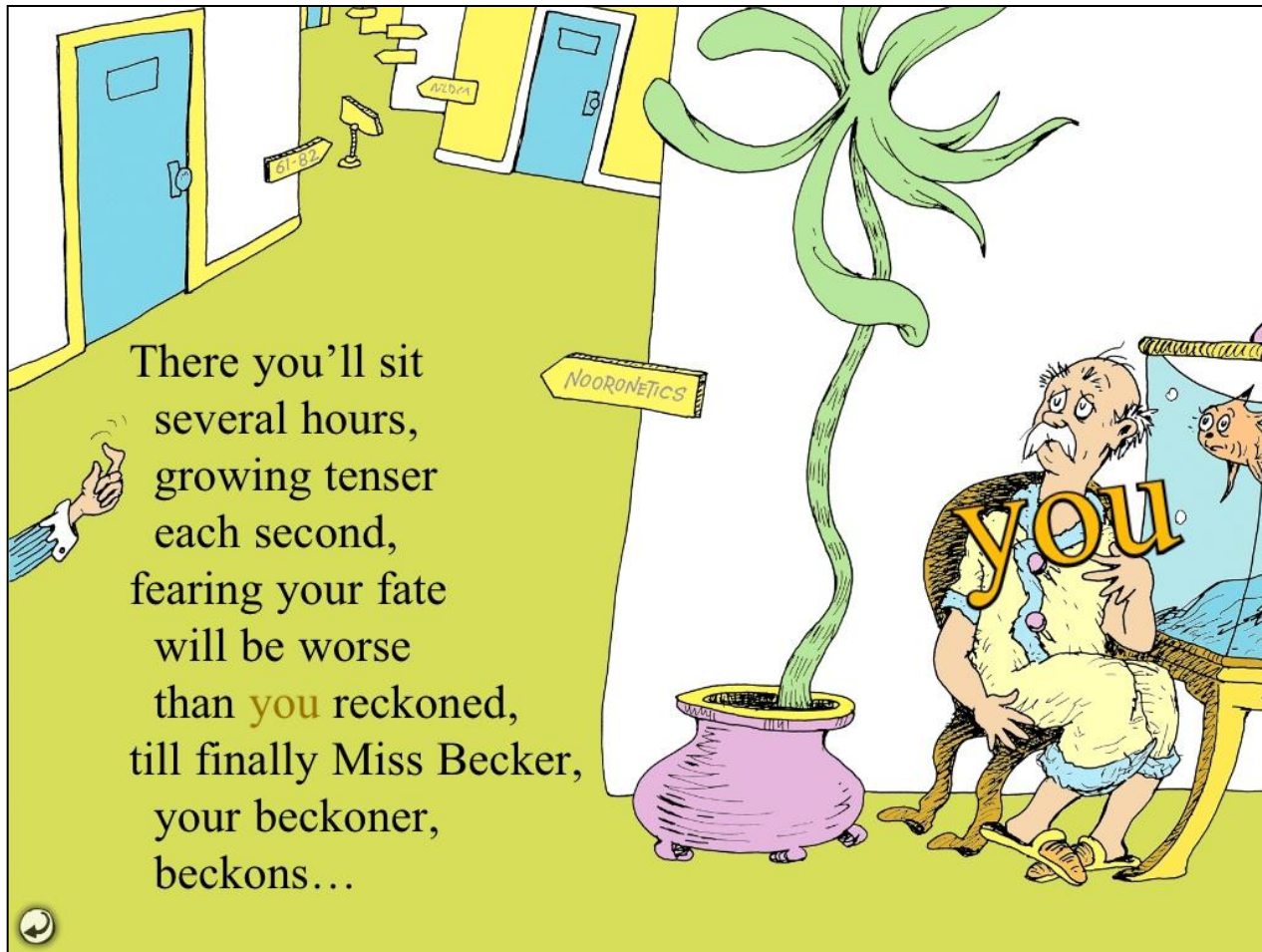
The Apps

- iBooks
- Word BINGO
- You're Only Old Once
- Sight Words by Photo Touch
- Speak it! Text to Speech
- Comprehension TherAppy
- Reading TherAppy (coming soon)

iBooks



+ Dr. Seuss



+ Comprehension TherAppy



Home icon | 9 correct | 1 incorrect | 10/100 progress



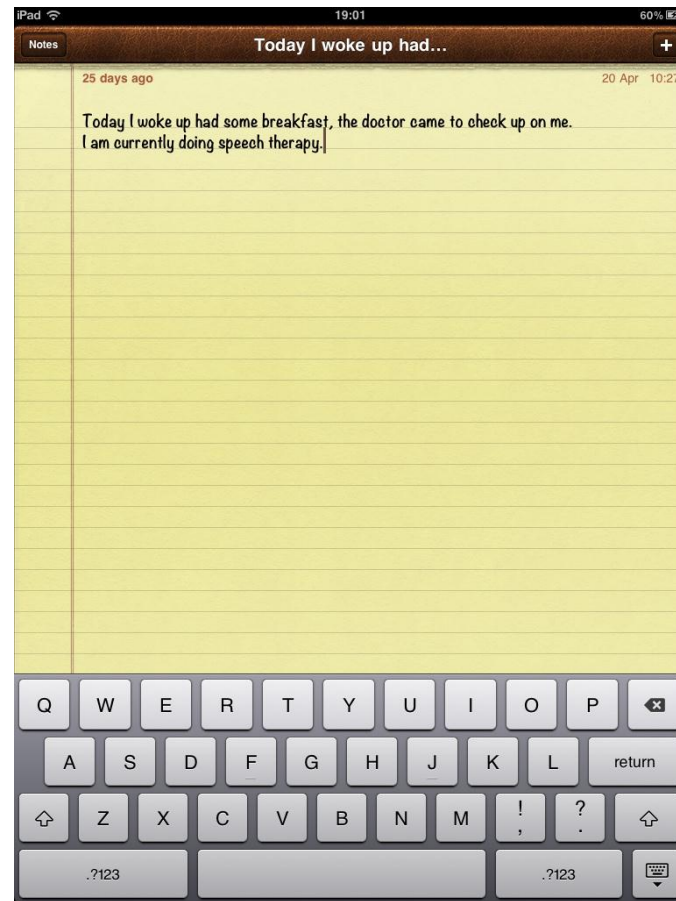
glass

+ Writing

The Apps

- Duddle Buddy
- Cursive in le
- Dragon Dictation
- Writing TherAppy
- Intro to Letters
- Notepad
- Sight Words by Little Speller
- Word Magic
- Verbally
- Hangman

Notepad

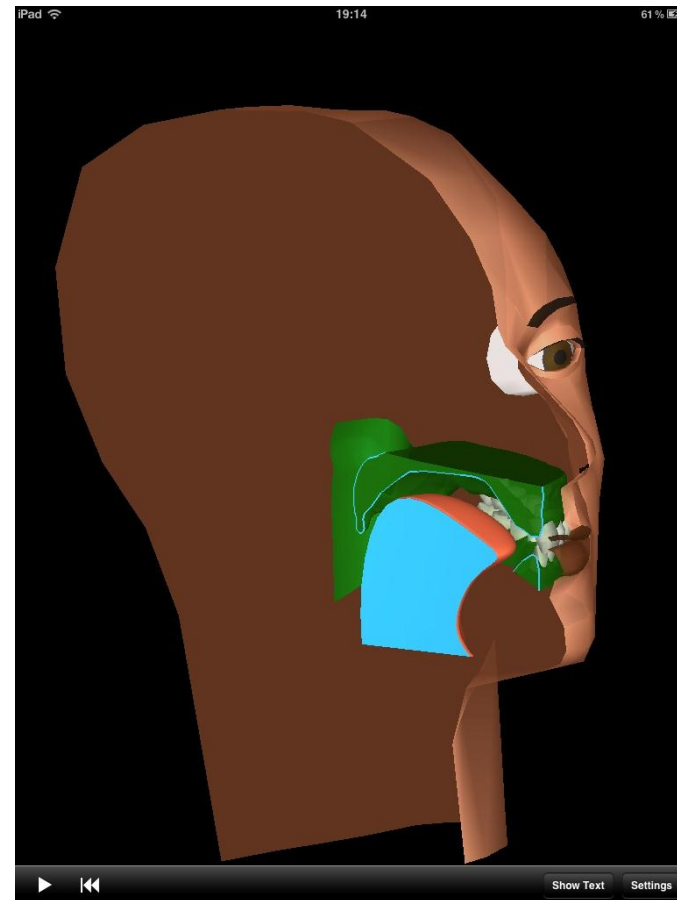


+ Speech

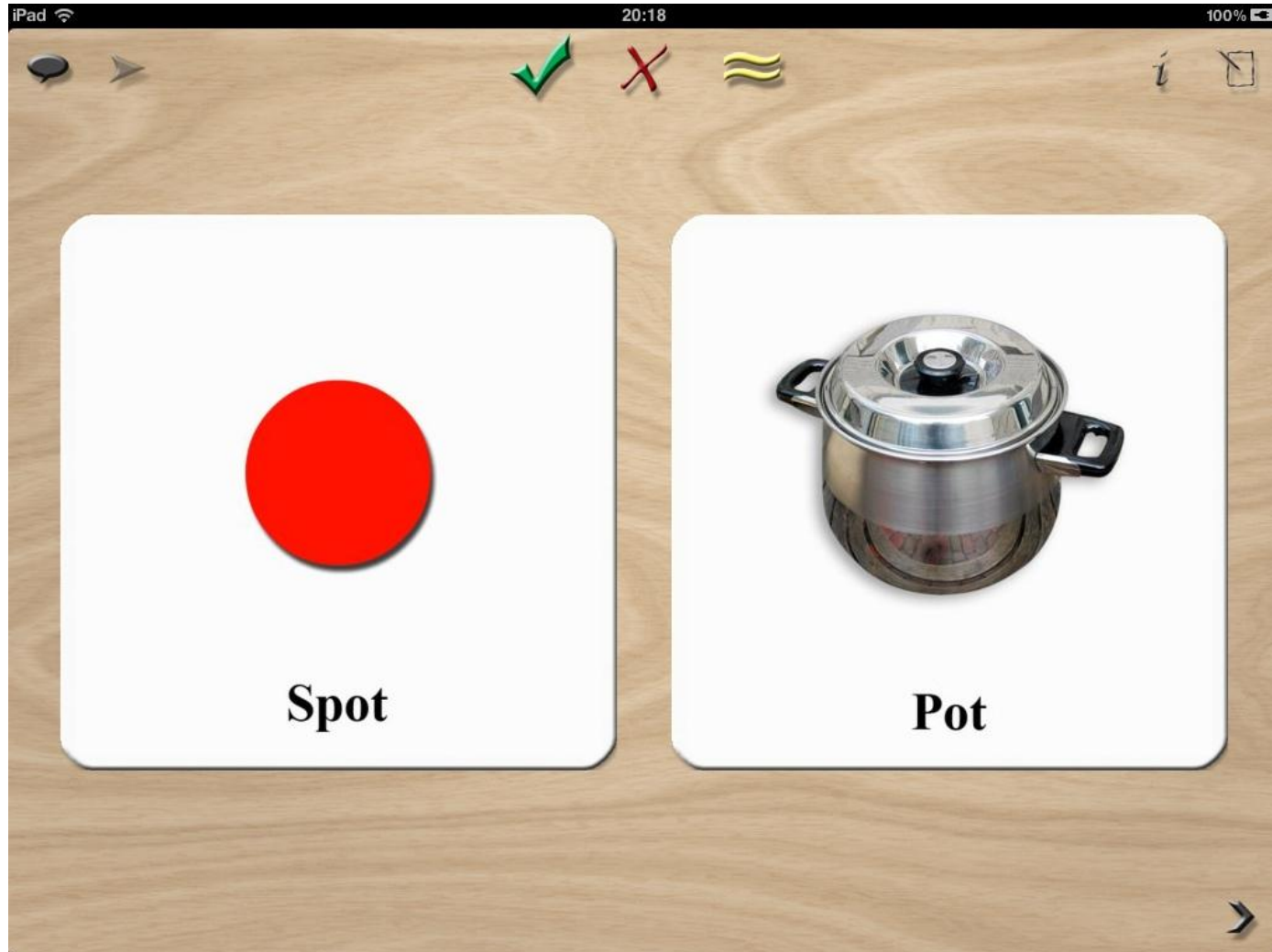
The Apps

- Bla Bla Bla
- iBaldi
- Lingraphica SmallTalk
Blends, Oral Motor,
Phonemes
- Minimal Pairs
- Pocket SLP Articulation
- Tongue Twisters
- Audio Memos
- Speak-in-Motion
- Speech Sounds on Cue –
US version \$150

iBaldi



+ Minimal Pairs



+ Lingraphica SmallTalk Apps



+ Swallowing

The Apps

- iSwallow
- Lingraphica SmallTalk Dysphagia
- Lingraphica SmallTalk Oral Motor

iSwallow – Schedule Function



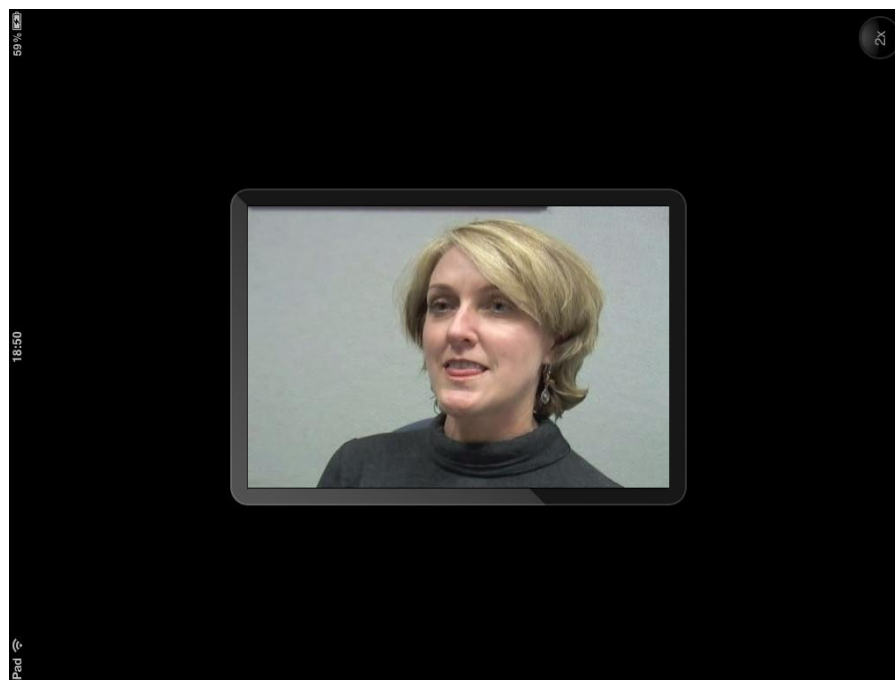
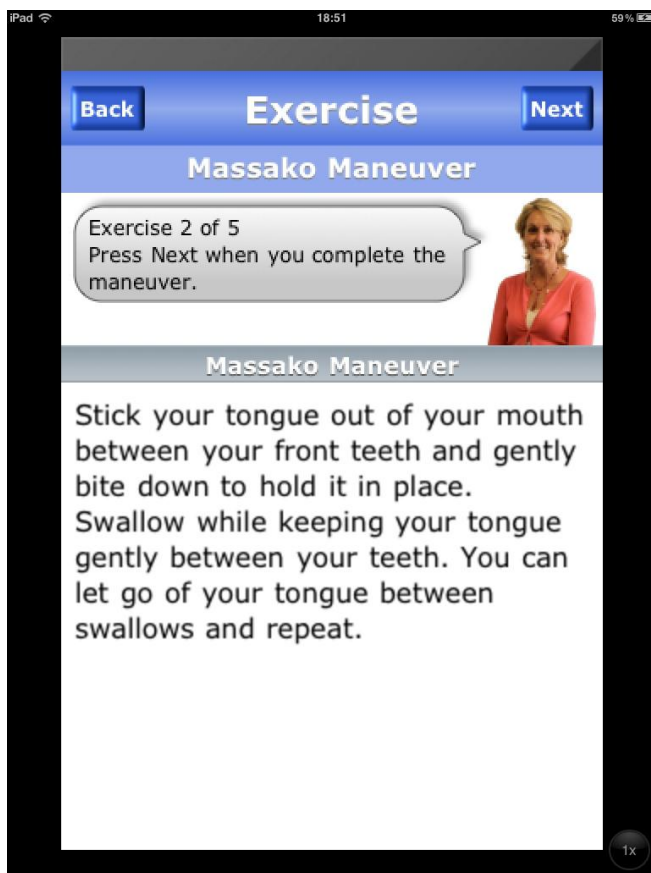


iSwallow

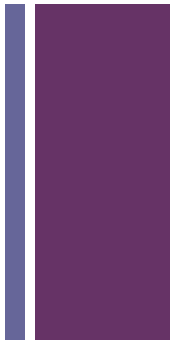
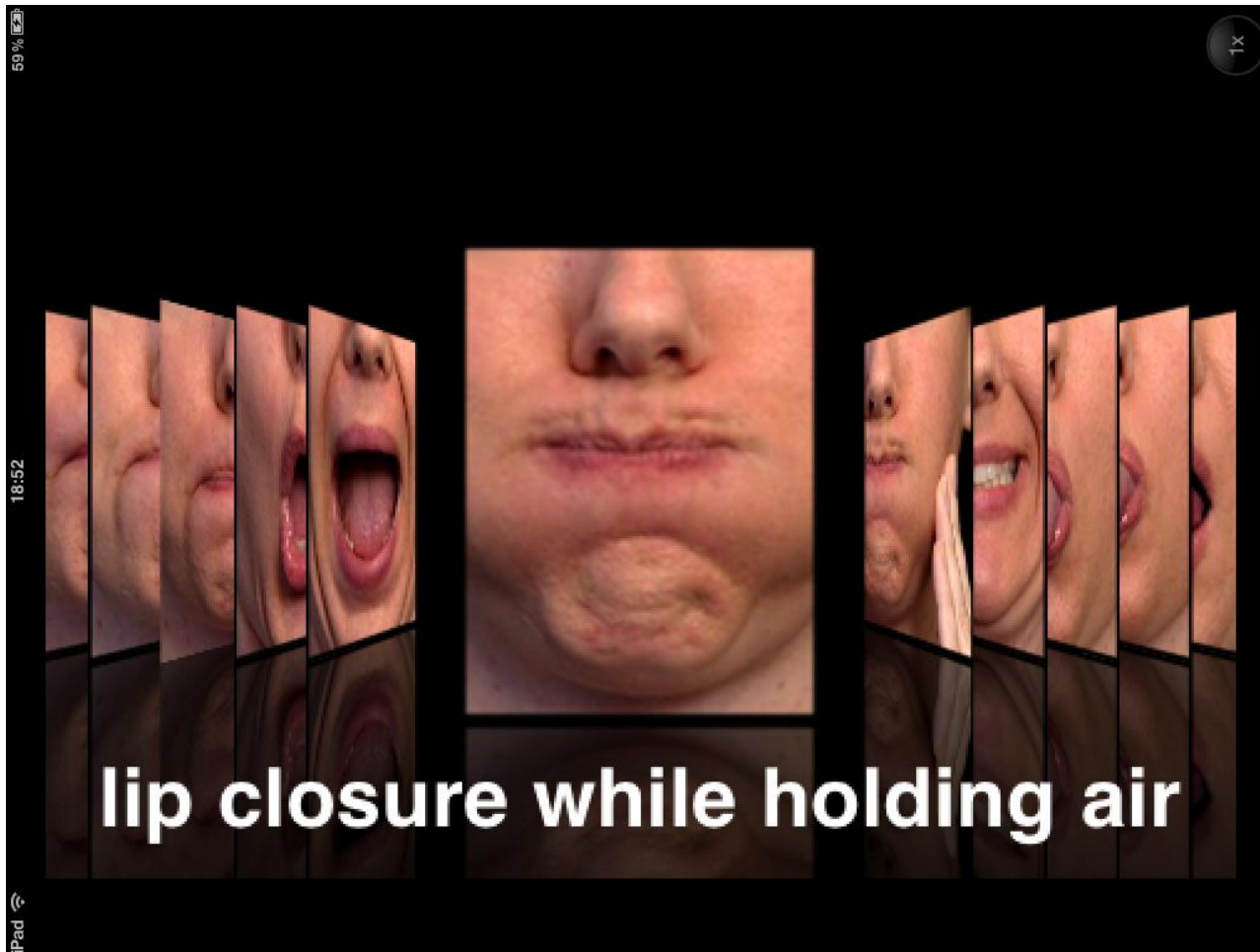
from UC Davis Centre for Voice and Swallowing

Step-by-Step Instructions

Video Demonstration



+ Oral Motor Exercises

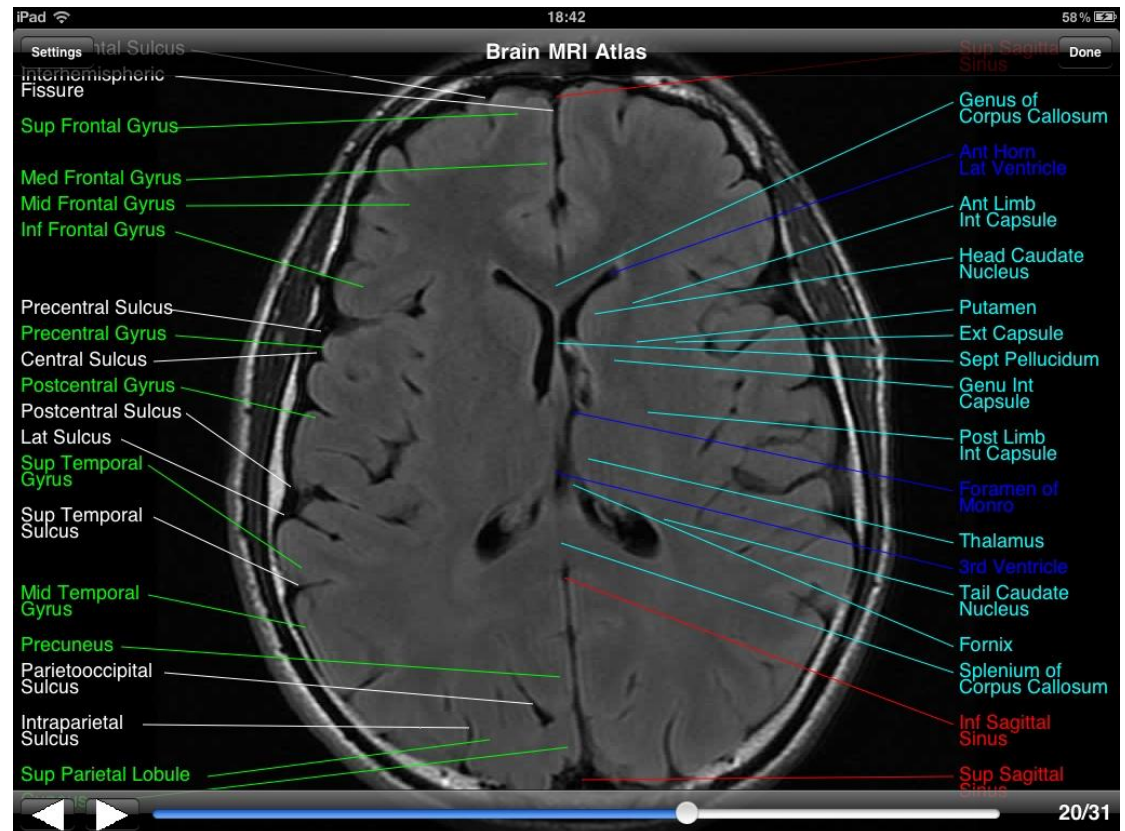


+ Education

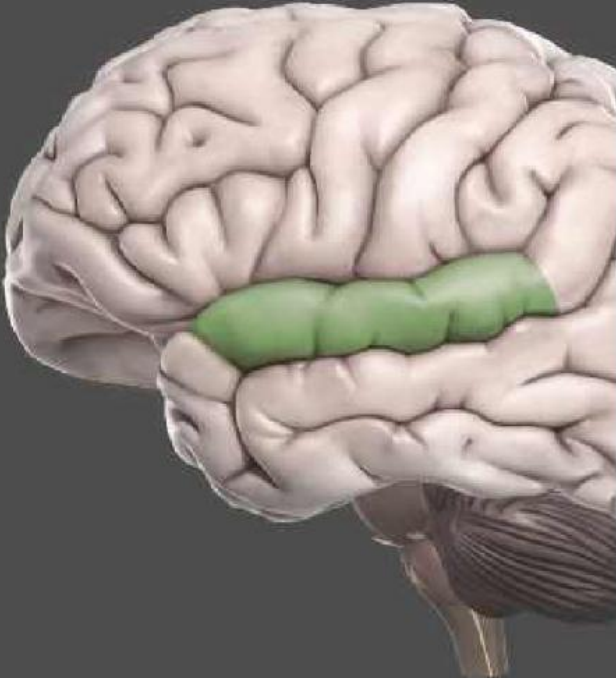
The Apps

- 3D Brain
- Brain MRI Atlas
- NeuroMind for iPad
- Upper Respiratory Virtual Lab

Brain MRI Atlas



+ 3D Brain



Superior Temporal

Associated functions

- sound processing
- speech processing and comprehension
- auditory memory

Associated cognitive disorders

The superior temporal gyrus has been proposed as a locus for auditory verbal hallucinations in schizophrenia (Stephane and colleagues, 2001).

Associated with damage

- difficulty processing auditory information and recognizing sound patterns
- problems comprehending speech

Substructures

- planum polare
- planum temporale
- Wernicke's area

Research reviews

- Kasal and colleagues

Structures

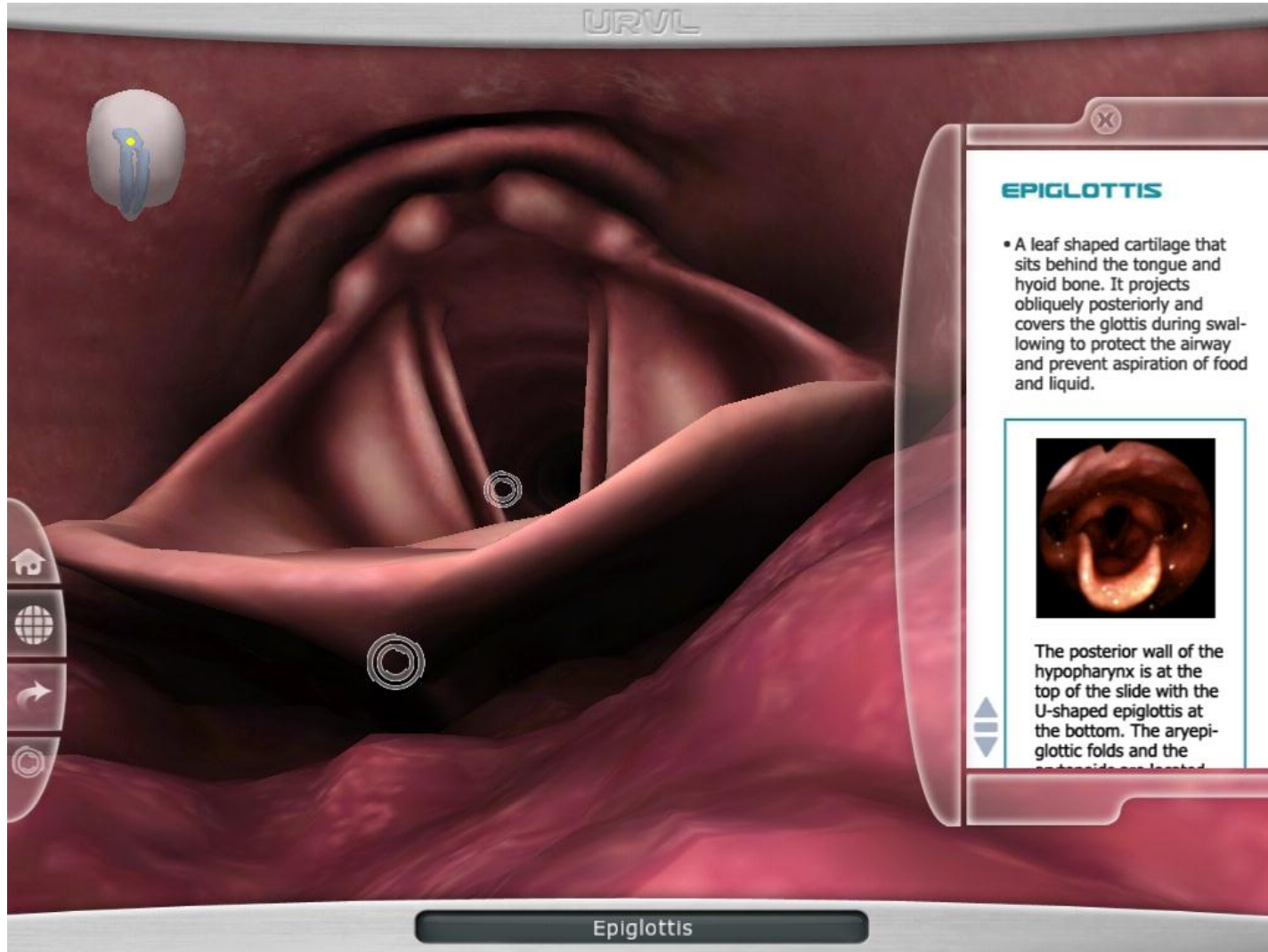
T Info

L Labels

Search

Help&About

+ URVL

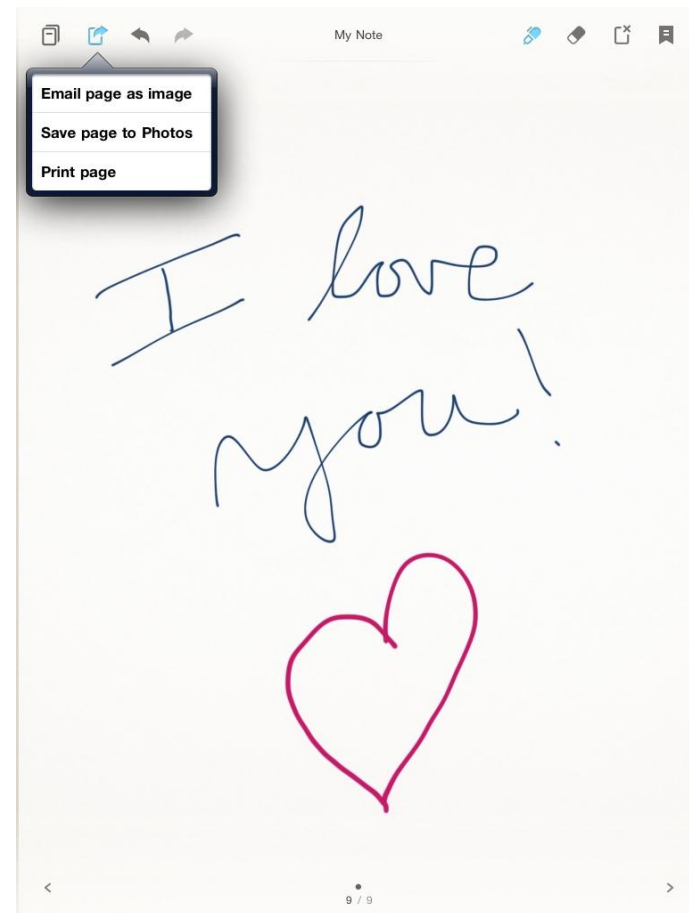


+ Communication

The Apps

- Skype
- Facetime
- Facebook
- Twitter
- Mail
- Bamboo Paper
- Camera
- Audio Memos
- Dragon Dictation
- QR Readers

Bamboo Paper



+ Coordinator Support

The Apps

- Calculator
- Reminders
- Calendar
- Dragon Dictation
- Notepad
- Audio Memos
- Dropbox

+ Attention

The Apps

- Doodle Find (Works with Inattention-Perceptual Skills)
- Fantastic 4 in a row
- Find Photo Differences
- Simply Find it
- Word Search Star



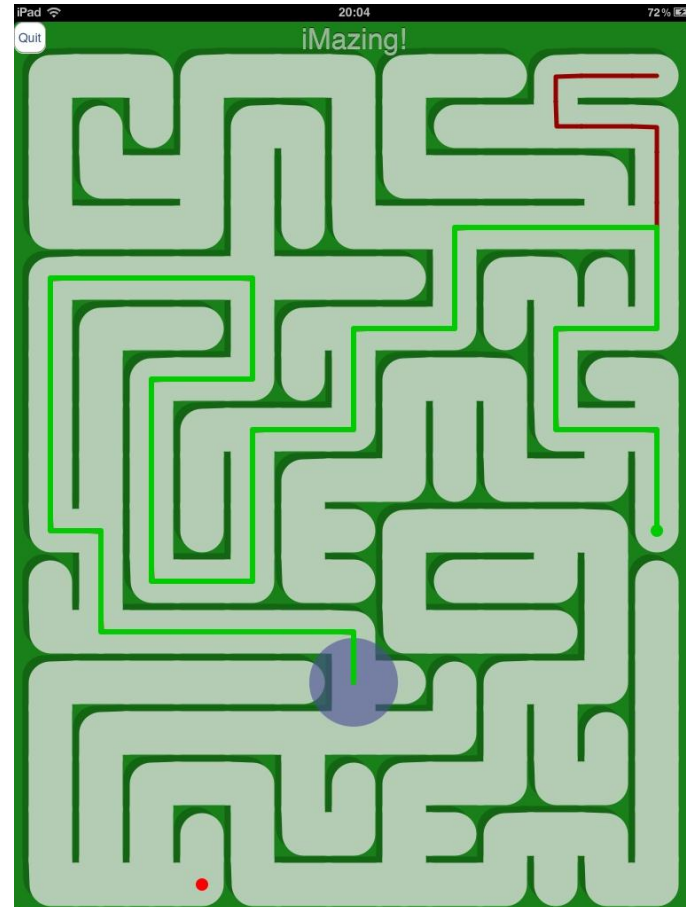


Information Processing (Problem Solving and General Integrated Cognitive Skills)

The Apps

- Guess'em
- Fruit Match
- Imazing (Perceptual Skills)
- BrainFit 2
- Suduko
- Brain Challenge (Perceptual Skills)
- Move it (Perceptual Skills)

Imazing

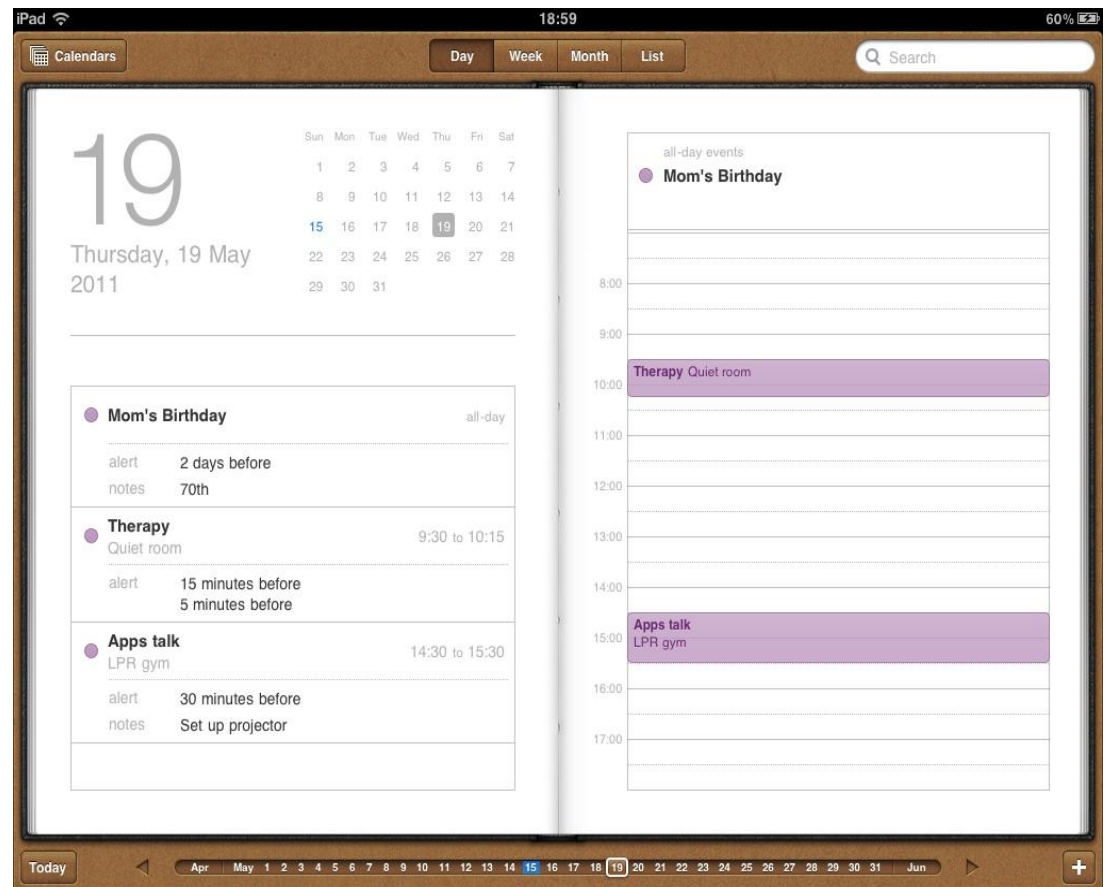


+ Memory

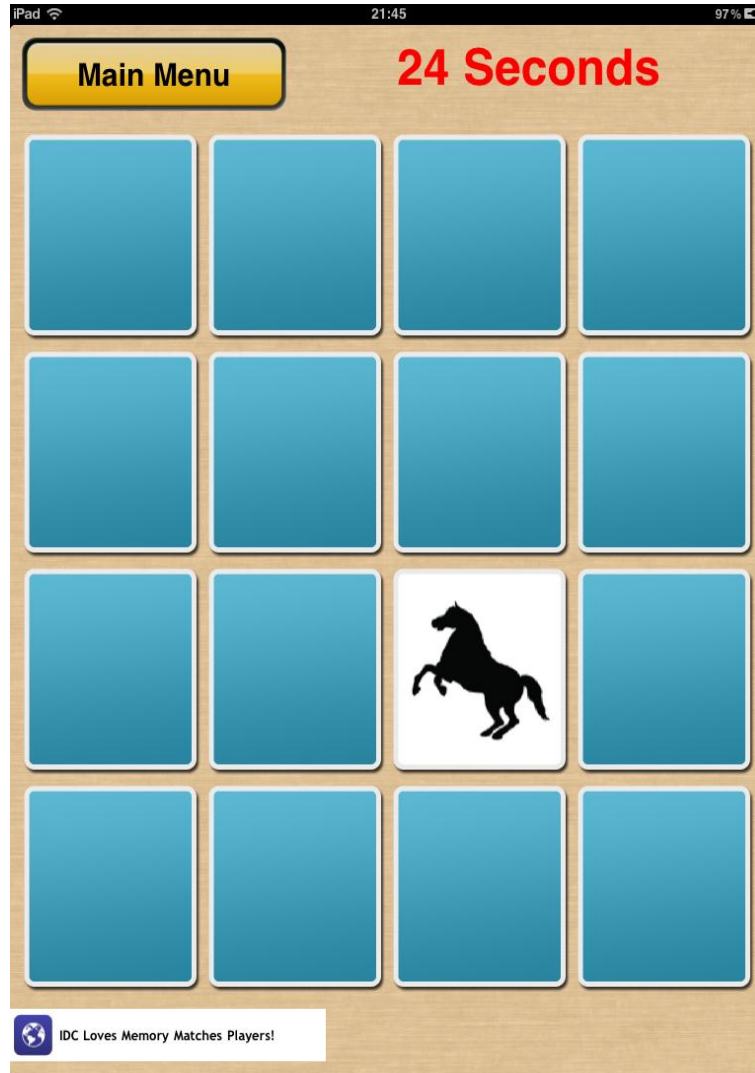
The Apps

- Alarmed
- Awesome Memory
- Memory Matches
- Memory Game
- Calendar

Calendar



+ Memory Matches



+ Executive Functioning

The Apps

- Betty Crocker Cookbook
- Jamie's Recipes
- Recipe Box
- Calendar (Planning)
- Google Maps
- Math (Finances)
- Calculator
- Math drills lite

Recipe Box

The screenshot shows the Recipe Box app interface on an iPad. At the top, it displays 'iPad', signal strength, Wi-Fi, time '21:44', and battery '97%'. Below the title 'Recipe Box', there is a 'BACK' button and a 'steps' indicator showing '1 2 3' with a star icon. The main title is 'Vegetable Lasagna'. On the left is a photo of the lasagna. On the right is a 'Recipe Information' box with the following details:

Recipe Information	
Serves	8
Skill Level	Intermediate
Prep Time	30
Cooking Time	30

Below the information box is a paragraph: 'We've simplified the lasagna-making process by soaking the noodles and using extra sauce when layering, instead of boiling the pasta. [Read more](#) and [buying with](#)'.

Below the photo and information box are two columns: 'Ingredients' and 'Instructions'.

Ingredients

- 1 tbsp (15 mL) PC Splendido Extra Virgin Olive Oil - Cold Pressed
- 1 cup (250 mL) PC Splendido Part-skim Stretched Mozzarella Cheese
- 12 PC Blue Menu 100% whole wheat Lasagne
- 1 jar (700 mL) PC Pasta Sauce - Roasted Portobello Mushroom
- 1 egg
- 1 1/2 cup (375 mL) sliced red onion
- 2 small zucchini, chopped
- 1 sweet red pepper, chopped
- 1 tub (475 g) low fat ricotta cheese

Instructions

1. Preheat oven to 350°F (180°C). Spray 13 X 9-inch (3 L) glass baking dish with PC Blue Menu Canola Oil Cooking Spray.
2. Soak noodles in cold water to cover. In bowl, stir together ricotta and egg. In another bowl, stir together pasta sauce and 1 cup (250 mL) water.
3. In large frying pan, heat oil over medium-high heat; cook onions for 2 minutes, stirring occasionally. Stir in zucchini; cook for 2 minutes longer. Stir in red peppers; cook for 2 minutes or until vegetables are soft and beginning to turn golden.
4. Drain noodles. Pour 1/2 cup (125 mL) pasta sauce mixture over bottom of prepared dish. Place three noodles in pan to cover bottom. Top with 1/2 cup (125 mL) sauce mixture, covering noodles evenly. Sprinkle with one-third of vegetables. Dollop one-third of ricotta mixture evenly over vegetables. Top with three noodles. Layer with 1/2 cup (125 mL) sauce mixture, one-third of vegetables, one-third of ricotta and three noodles. Repeat, ending with final three noodles. Pour remaining sauce mixture over noodles. Cover dish tightly with foil.

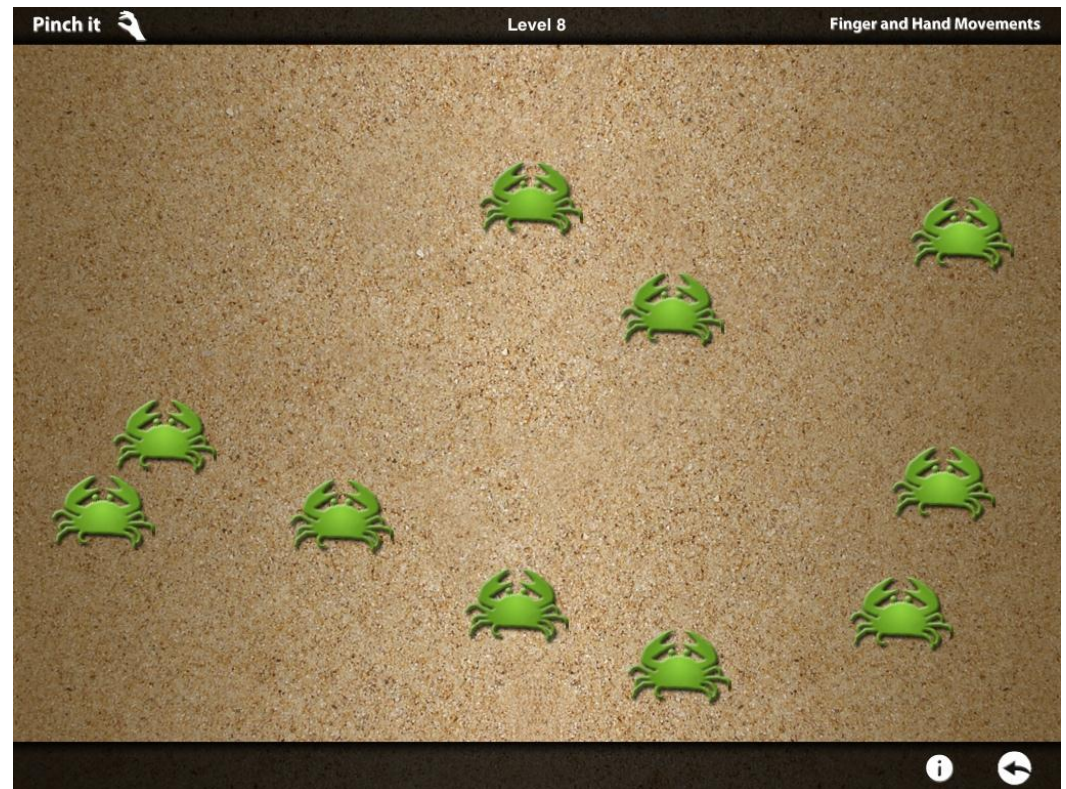
At the bottom left of the screenshot is an information icon (i).

+ Motor Therapy

The Apps

- All Apps that require touch and fine motor skills
- Intro to Letters
- Dexterity

Dexterity



+ Rec and Leisure

The Apps

- Checkers
- Angry Birds
- Word Bingo
- Air Hockey
- Groupon
- Facebook
- Ipod music

Angry Birds





A Case Study



- 31 y.o. male with TBI and global aphasia
- Family purchased iPod touch and pt used:
 - AAC Software (Proloquo2go) to communicate
 - Built-in camera to show what he did on the weekend
 - Voice Recorder to take audio clips in his life (singing the national anthem)
 - iPod to listen to his favorite music
 - Games to play with friends and pass time
 - Maps to show where he lives
 - Therapy apps to practice reading, spelling, and speaking
 - Calendar app for scheduling therapy appointments and reminders
- Pt loved his device and wouldn't touch paper communication boards. He carried it in his pocket all the time. The "cool" factor made AAC possible.
- iPad and iPod touch owned by the unit were used for assessment and therapy before the family was advised to purchase their own