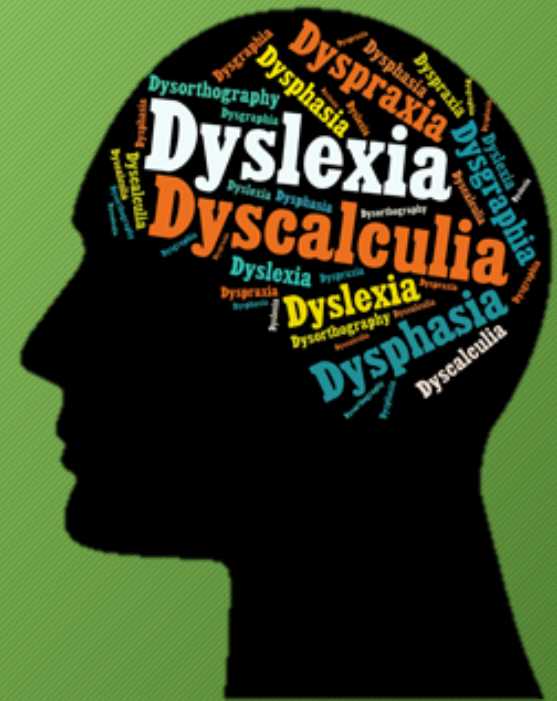# Assistive Technology and Learning Disabilities

atn
STARTING TODAY

Learning Disabilities

Learning disabilities can present challenges with:

- Language
- Problem Solving
- Memory
- Information Processing
- Sensory Acuity
- Physical Barriers

L.D. Problems and Solutions

Language

Types of language problems:

- Reading comprehension
- Cognitive communication
- Writing proficiency
- Understanding and expressing thoughts through language
- Physical speech

Reading Comprehension

Text-to-Speech Software

- Kurzweil 3000
- Balabolka
- Read Please Free
- Reading Pen
- Read and Write
- Snap & Read

Balabolka Demo

Grammar Proficiency

Grammar Proficiency

- Ginger
- Gramarly

Dictionary Apps

- Websters App
- Oxford English App

Ginger Demo

Writing proficiency

Text Prediction
- WordQ+SpeakQ
- iWordQ for iPad
- Dicom Portable

Dicom Demo

DICOM Portable   x

F1: oaf
F2: oafs
F3: oafish
F4: oak
F5: oaky
F6: oakum
F7: oaken
F8: oars
F9: oar
F10: oarsman

Writing proficiency

Speech-to-Text

- Dragon Naturally Speaking
- Siri
- Mac Enhanced Dictation
- Windows Speech Recognition

Dragon Demo

Physical Speech

Augmentative and Alternative Communication (AAC)
- Grid Player
- BoardMaker

Problem Solving

When there are problems with concentration, other skill areas can be affected:

- Difficulty Following Instructions
- Focus
- Memory

Problem Solving Solutions

Brain Training Programs

- Luminosity
- Big Brain Academy (Nintendo)
- Elevate Brain Training (iOS)
- Fit Brains Trainer (iOS)
- Cogmed

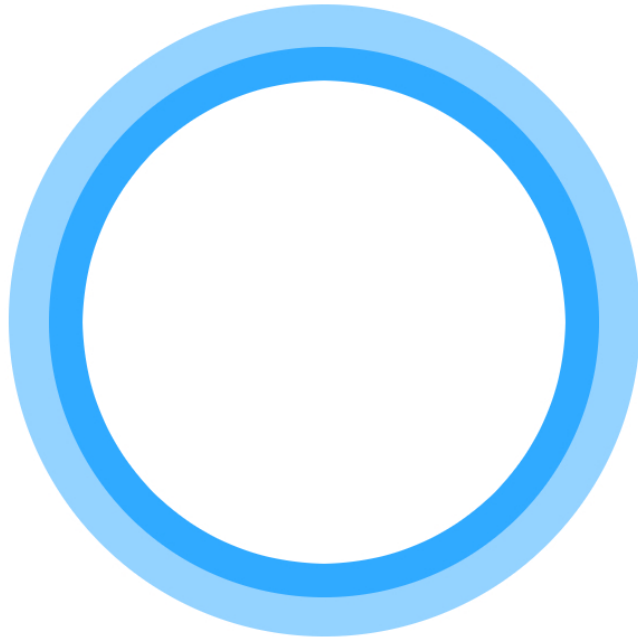# Memory Difficulties

Examples of memory difficulties are:

- Forgetting what has been just said
- Having difficulty in learning a new skill
- Repeating the same question over and over
- Forgetting people's names
- Getting details mixed up
- Forgetting a change in routine
- Forgetting where things have been placed

Memory Solutions

- Siri / Cortona (reminders, schedulers, timers, alarms, notes)
    - Note that I spent $12 on Lunch.
    - Set up a meeting at 9.
    - Give me directions home.
    - Remind me to call the dentist.
    - Wake me up tomorrow at 7am.
    - What is Emily's address?

- Take pictures for visual reminders (Office Lens)

- Digital recorder app (Dragon Recorder)

- Note taking apps (OneNote / Penultimate)

- Bamboo Spark (for written to digital note taking)

- To-Do Lists (Wunderlist)

Cortana Demo … remind me

I sit in Live Tile on your Windows Phone and bing at your command.

I have a personal diary to keep notes about you.

If you choose, I can even read your emails and help you with your life.

To help, I get context not only from Bing, but also from TPA's like Yelp.

I follow natural launguage commands, & I'm learning everyday.

Devs can integrate me in their apps and make 'em listen to you.

Hi. I'm Cortana.
Your personal digital assistant.

Information Processing

The speed information is processed can be slowed:
- Not understanding fast speech
- Being unable to absorb instructions the first time around
- Not being able to quickly reply to a question

Attentional problems tend to get worse when the person is tired, stressed or worried. And can affect:
- Difficulty following instructions
- Planning ahead
- Being organized

Information Processing Solutions

Speed of Thought

- Kurzweil 3000
    - Auditory method of learning with set voice speed
    - Visual highlighting of text as it's read aloud
    - Word study solutions such as synonyms and dictionaries
    - Study Tools such as extracting text, voice notes, etc.
    - Create a MP3 or CD (audiobook) of content

Organizational Problems

- Mind Mapping (Inspiration | X-Mind)
    - help with organization of planning in writing/visual form

X-Mind Demo

Sensory Acuity

- Visual sensitivities can cause problems with bright lights, distances, spatial reasoning and eye fatigue

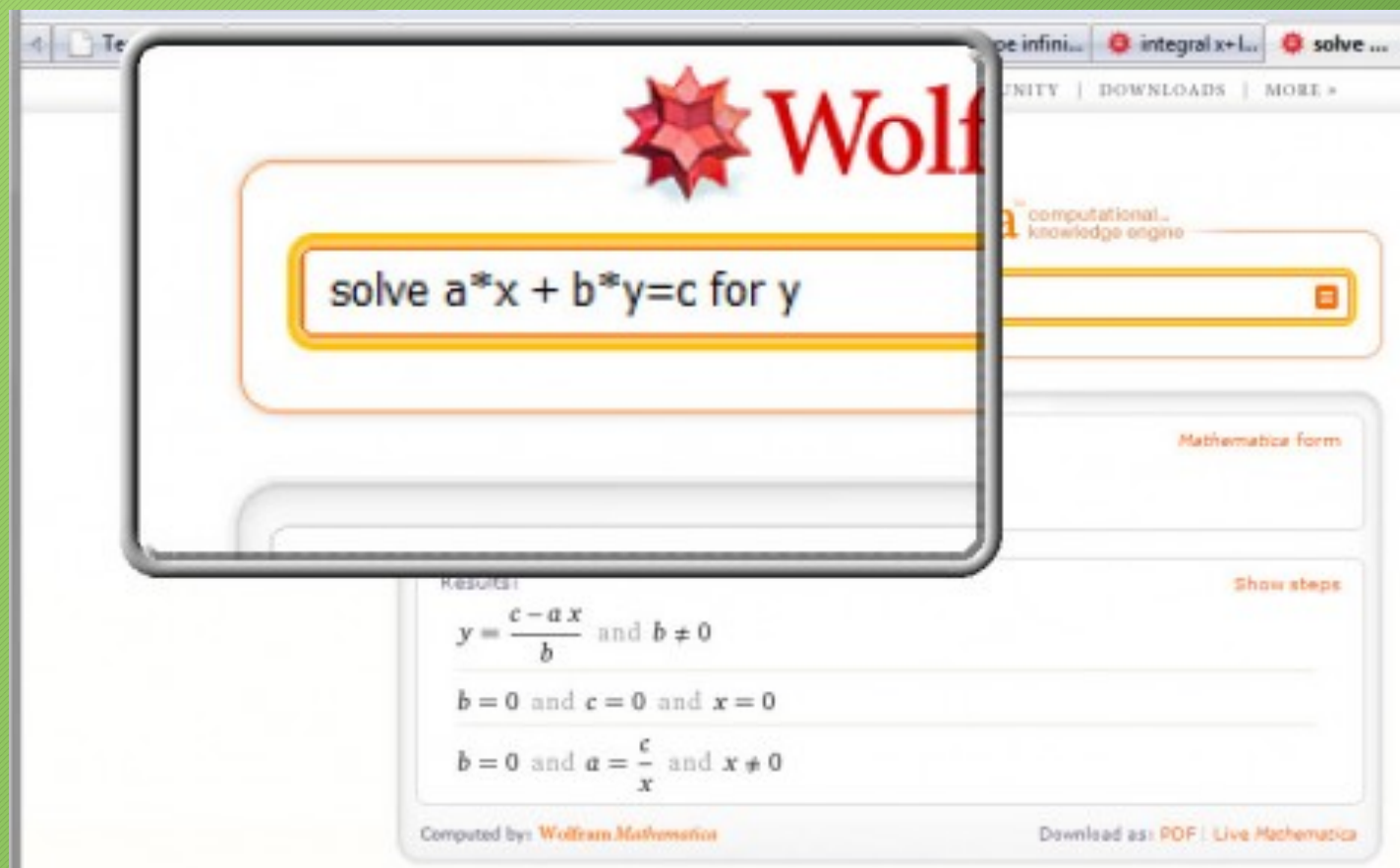- Auditory sensitivities can cause problems with loud noises and hearing loss

Sensory Solutions

Visual Sensitivities

- ZoomText / MAGic
    - Screen Magnification
    - Menu Focus Bars
    - Mouse and Insertion Point Enlargement
- Reduced Contrast and Brightness
- Virtual Magnifying Glass
- Screen Readers (Jaws, VoiceOver, NVDA, Windows-Eyes)
- Extensions (ChromeVox)
- EyeLeo Break Software
- App Controlled Lighting
- Backlight Keyboards

Virtual Magnifying Glass Demo

Sensory Solutions

Auditory Sensitivities

- "Active" noise cancelling headset
- "Passive" noise cancelling
- Visual notifications instead of auditory (part of Windows Ease of Access)
- Closed Captions

Physical Barriers

- Partial or full paralysis
- Muscle weakness
- Inability to use dominant hand
- Reduced focus

Physical Barrier Solutions

- Ergonomic chairs and desks
- Non-dominate and specialized mice and keyboards
- Screen size / height adjustments
- Eviacam
- Switches
- X-Keys

Eviacam Demo

Future Technologies
… you can buy now

VR
- Job Simulators

Alexa
- At Home Personal Assistant

Thank You