Assistive Technology

"What is it?", "How can schools consider it?", and "What tools can be used at home?"

“

For people without disabilities, technology makes things easier.

For people with disabilities, technology makes things possible.

Mary Pat Radabaugh

What is assistive technology?

Device

"... any item, piece of equipment or product system, whether acquired, commercially off the shelf, modified or customized, that is used to increase, maintain or improve functional capabilities of a child with a disability."

Service

"... any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device."

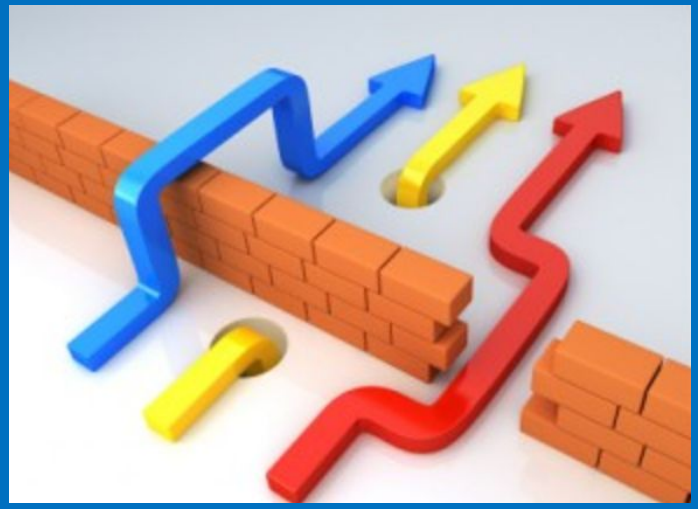
IDEA § 300.105, § 300.5, § 300.6

https://bit.ly/AT_and_IDEA

In English please!

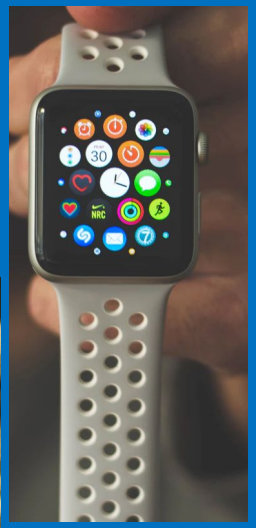
“

Any device, software or equipment that can help kids with learning and attention issues work around their challenges.



What are some examples of devices and service?

Devices



Service

Classroom Teacher

Ancillary Staff

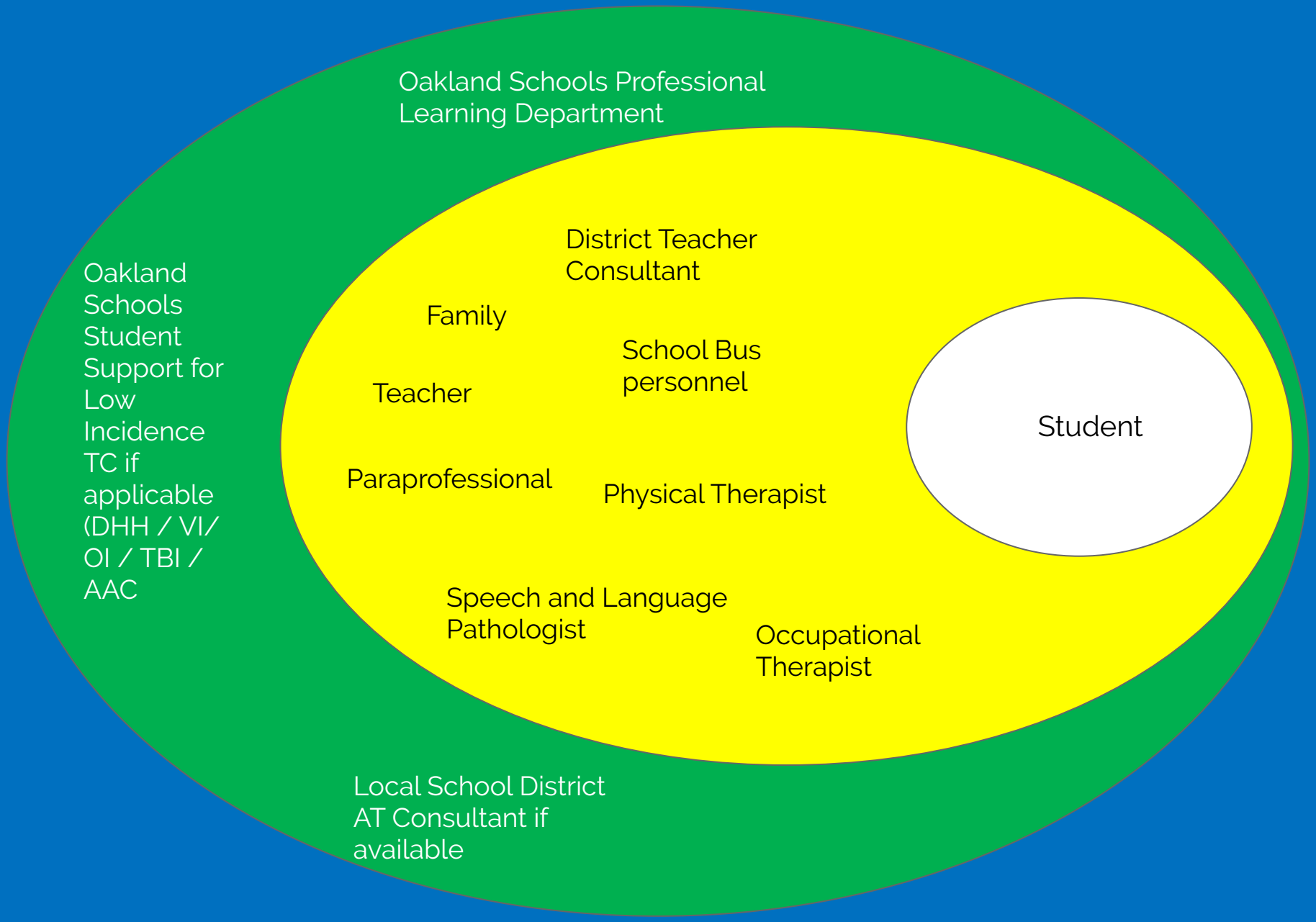
Consultant

Who can assess the need for assistive technology?

- Any “professionals knowledgeable about assistive technology devices…”
- Oakland Schools can provide capacity building through professional learning events

- R 340.1781 “Using assistive technology devices to increase, maintain, or improve the capabilities of students with impairments.”
- R 340.1786 CI
- R 340.1788 LD
- R 340.1799 ASD

https://bit.ly/MARSE2019


Oakland Schools Professional Learning Department
Oakland Schools Student Support for Low Incidence TC if applicable (DHH / VI/ OI / TBI / AAC
District Teacher Consultant
Family
School Bus personnel
Teacher
Student
Paraprofessional
Physical Therapist
Speech and Language Pathologist
Occupational Therapist
Local School District AT Consultant if available

Eligibility

High Incidence

Autism Spectrum Disorder
Cognitive Impairment
Early Childhood Developmental Delay
Emotional Impairment
Specific Learning Disability
Speech and Language Impairment
Otherwise Health Impaired
Severely Multiply Impaired

Low Incidence

Deaf/Blind
Deaf and Hard of Hearing
Visually Impaired
Orthopedic Impairment
Traumatic Brain Injury

If your child uses Alternative Augmentative Communication (this is not an eligibility area)

The students who are eligible under the low incidence category typically have service providers who are familiar with specialised assistive technology tools specific to that eligibility category area.

If your child has an eligibility that falls under the low incidence category, they might be provided with equipment from Oakland Schools; students with an eligibility under the High Incidence category will be required to use tools their local school district provides.

Individuals with Disabilities Education Improvement Act, 2004

The law states that...

- The assistive technology needs of a student must be *considered* at IEP meetings
- The IEP team has to determine if a student receiving special services requires assistive technology in order to receive a free and appropriate public education

Assistive technology consideration process

- The IEP team completes an active process to determine what, if any, technology a student needs to guarantee a free and appropriate public education.
- It is a “process” by which the team “considers” (assesses) the need based on data

Important:

AT is primarily compensatory, not remedial.

Ready?
SETT
Go!

The Framework for consideration and assessment of assistive technology

SETT: The 8-Step Decision Making Process

1. Identify areas of concern
2. Gather information on aspects related to concerns
3. Analyze the information
4. Generate and prioritize potential solutions
5. Develop a plan
6. Work the plan and collect data on its effectiveness
7. Revise the plan as indicated by the data
8. Document

Student

Environment

Tasks

Tools

Student E T T

- Main areas of functional challenge or concern
- Special physical limitations or obstacles
- Strengths, abilities and preferences
- Present levels of achievement
- Existing academic and behavioral data
- Current or prior assistive technology experience
- Evaluative information
- Adult observations
- School based and classroom expectations

- What does the student need to do?
- What are the needs of the student?
- What are the students current abilities?

S Environment T T

- Customary educational spaces
  - Classrooms
  - Gymnasium
  - Cafeteria
  - Playground
  - Bus
- Arrangement of physical spaces
- Materials and furnishings common to the spaces
- Observable access issues
- Expectations (State, staff, family and student)
- Needs of staff who support the student
- What materials are available in the environment?
- What is the physical arrangement of the classroom? Are there special concerns?

- What is the instructional arrangement of the classroom? Are there likely to be changes?
- What supports are available to the student?
- What resources are available to the people supporting the student?

S E Tasks T

- Specifically what the student must do to meet expectations, make progress toward goals and receive a free and appropriate public education
  - Communication
  - Participation
  - Self-regulation
  - Writing
  - Reading
  - Executive function skills

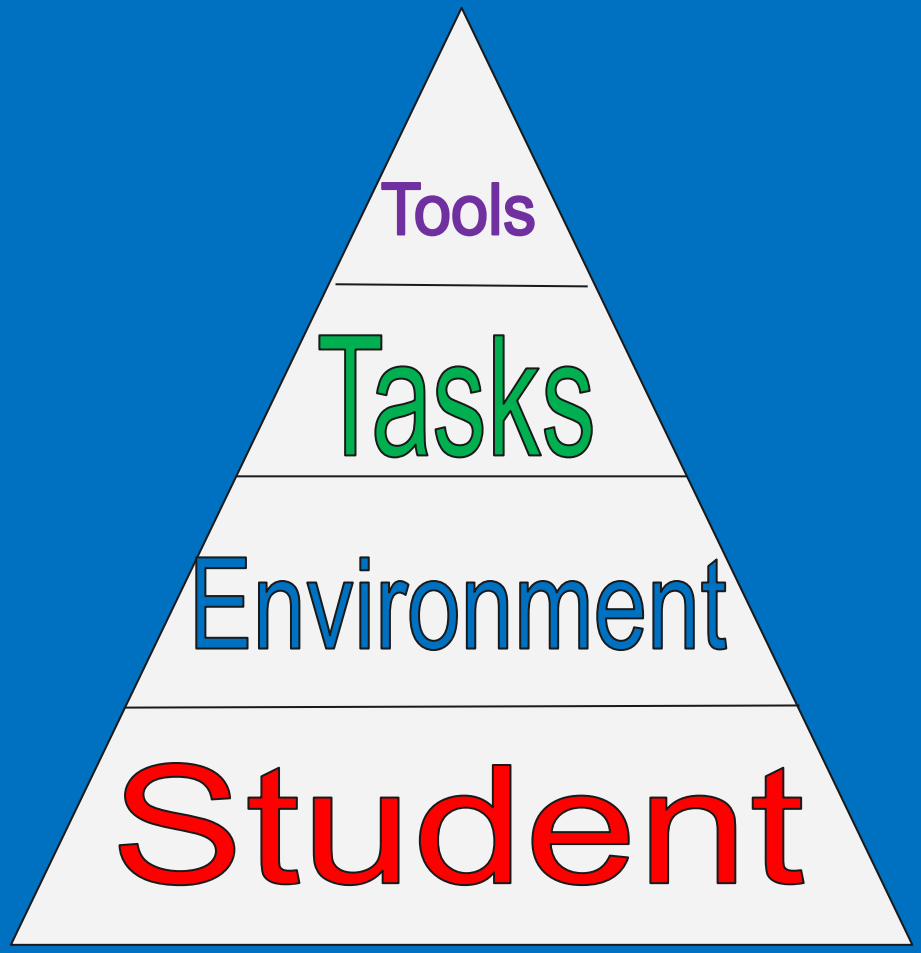
- Focus on what is required to be actively involved and independent in each learning environment

- What activities occur naturally in the environment?
- What is everyone else doing?
- What activities support the students curricular goals?
- What are the critical elements of the activities?
- How might the activity be modified?

S E T Tools

- Whatever is needed to enable the student to do (or learn to do) the tasks that lead to high levels of participation and achievement:
- Accomodations
- Strategies
- Technology (no-low-mid-high)
- Accessible materials
- Modification
- Supports and training

- The features that reduce or eliminate barriers are more important than the device itself.



SETT Overview Example

Student	Environment	Tasks	Tools	Person Responsible	Implementation Date
Age, eligibility, medical, expressive communication, gross motor, fine motor, vision, behavioral needs, academic needs Overall strengths and areas of concern	What type/s of classroom/s the student participates in (general education, special education, co taught) Describe all the environments in which the student participates (Specials, recess, after school activities) Physical and instructional classroom arrangements	IEP objectives/goals What specific routine and curricular based tasks occur in the environment/s What are peers doing that this student needs to be able to do? How does this student complete the tasks differently?	*Tools are devices and services that are needed to help the student participate and benefit. *Tools must be student centered and task orientated, and reflect the current student needs *Describe tool features, not brands	* This will be your "go-to" person, and the best way to ensure that implementation is happening at the classroom level.	* It is recommended to schedule a follow up meeting to review the collected data roughly six (6) to either (8) weeks after the tools have been put in place.

Wait! There are other options, too!

The SETT Scaffold for Consideration of AT Needs by Joy Zabala

http://www.joyzabala.com/uploads/Zabala_SETT_Scaffold_Consideration.pdf

Palm Beach County SETT

http://www.kansasasd.com/downloads/old_files/Palm%20Beach%20County%20Forms.pdf

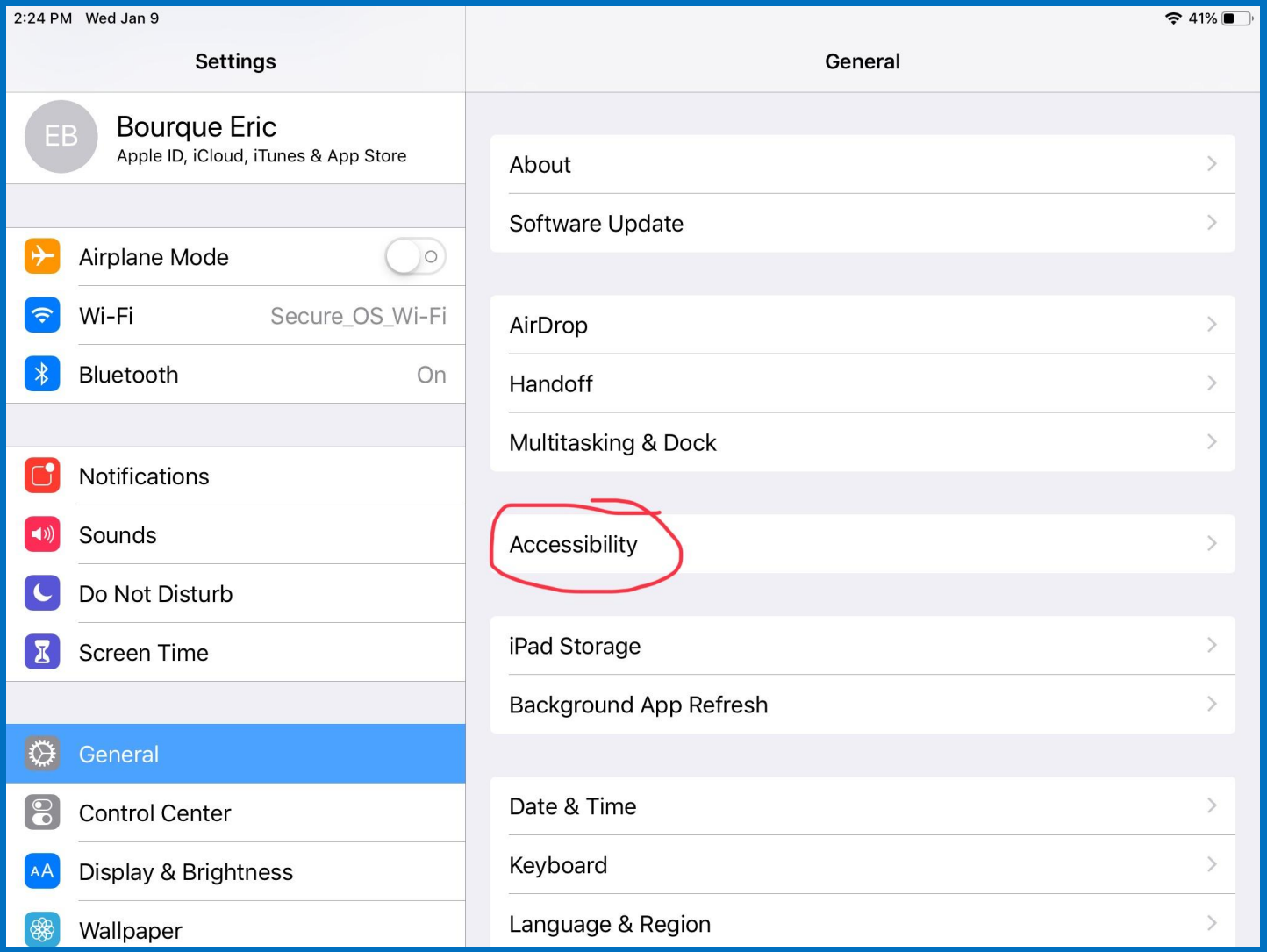
Wisconsin Assistive Technology Initiative

(publications tab)

http://www.wati.org/free-publications/

iOS accessibility

Native iOS accessibility tools and universal curriculum supports


2:24 PM Wed Jan 9
41%
Settings
General
EB
Bourque Eric
Apple ID, iCloud, iTunes & App Store
Airplane Mode
Wi-Fi
Secure_OS_Wi-Fi
Bluetooth
On
Notifications
Sounds
Do Not Disturb
Screen Time
General
Control Center
Display & Brightness
Wallpaper
About
Software Update
AirDrop
Handoff
Multitasking & Dock
Accessibility
iPad Storage
Background App Refresh
Date & Time
Keyboard
Language & Region

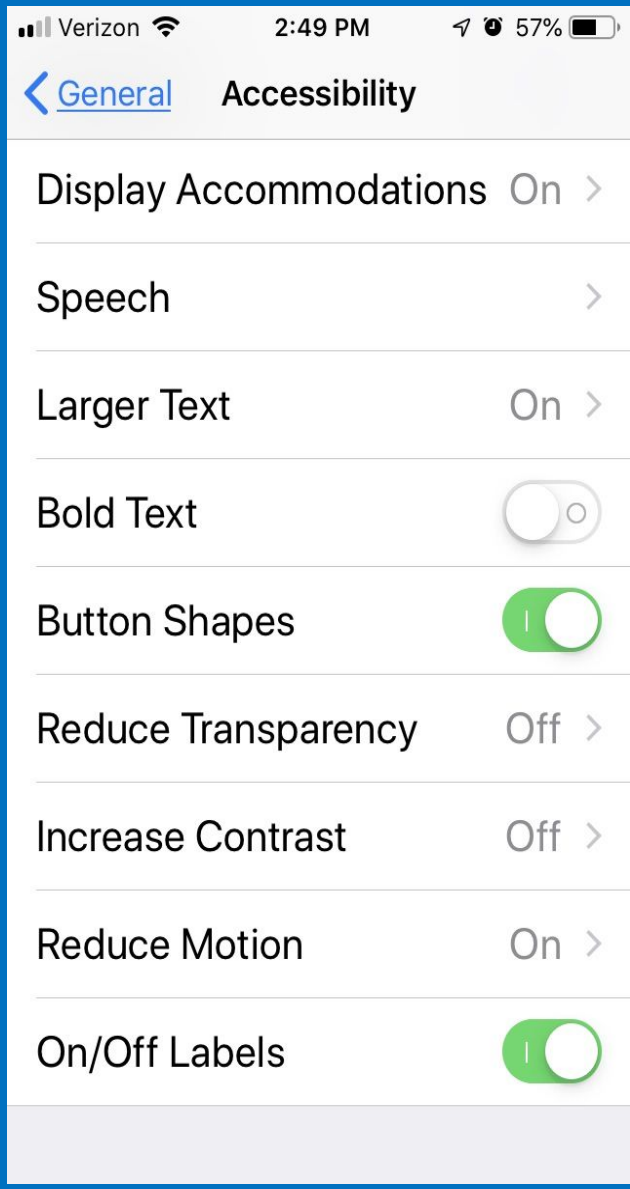
Vision

Vision settings assist people with visual perception issues. These may include those who are totally blind, have low-vision, or require larger text due to age-related vision changes.

- **VoiceOver:** speaks items on the screen and is controlled by gestures; "drags, flicks, taps, and scrubs" https://goo.gl/gbMBgr
- **Zoom**: screen magnification tool that allows user to zoom part of the screen
- **Magnifier**: uses the camera to zoom in on environment and display it on the screen; triple-click home button enables Magnifier
- **Display Accommodations**: variety of features allowing for screen display adjustment for color, contrast, and brightness
- **Speech**: allows speech for one word to entire screen
- **Larger Text**: automatically adjusts text size in apps and fields

Vision

- **Bold Text**: makes the text bold
- **Button shapes**: this feature underlines navigation words
- **Reduce Transparency**: improves contrast and increases legibility
- **Increase Contrast**: darkens color palette to enhance visibility
- **Reduce Motion**: reduces motion of user interface and icons
- **On/Off Labels**: adds universal on/off symbols to buttons



Interaction

The interaction settings are developed to assist users with physical or mobility impairments.

Reachability: brings the top half of the screen down to the lower half of the screen (iPhone)

- **Switch Control**: supports people who use external switches and scanning
- **Assistive Touch**: allows alternate but equivalent options for features such as single-tap and double-tap
- **Touch Accommodations**: changes how the screen responds to touch for users who have upper extremity or fine-motor limitations

3D Touch: allows the user to manipulate the cursor without touching the screen or lifing their finger from the screen (iPhone)

Home Button: adjusts the speed of double and triple clicks

- **Siri**: allows voice input to activate Siri, produce text, and activate Shortcuts
- **Keyboard**: customizes the keyboarding experience on screen and for Bluetooth
- **Shake to Undo**: allows the device to be shaken to undo the most recent input
- **Call Audio Routing**: allows routing of calls to speaker or a Bluetooth device

Hearing, Media, and Learning

The final three categories contain features developed for hearing and learning differences.

The Media section also provides some options for captioning and audio description:

- **MFi Hearing Devices:** supports users of hearing aids and other technologies (Live Listen)

  LED Flash for Alerts: Flash light blinks when alerts come through (iPhone)

- **Mono Audio:** removes stereo effect; there is also a sliding scale to adjust mix

  Phone Noise Cancellation: cancels background noise (iPhone)

- **Subtitles and Captioning:** ensures that available captions are visible on all video playback

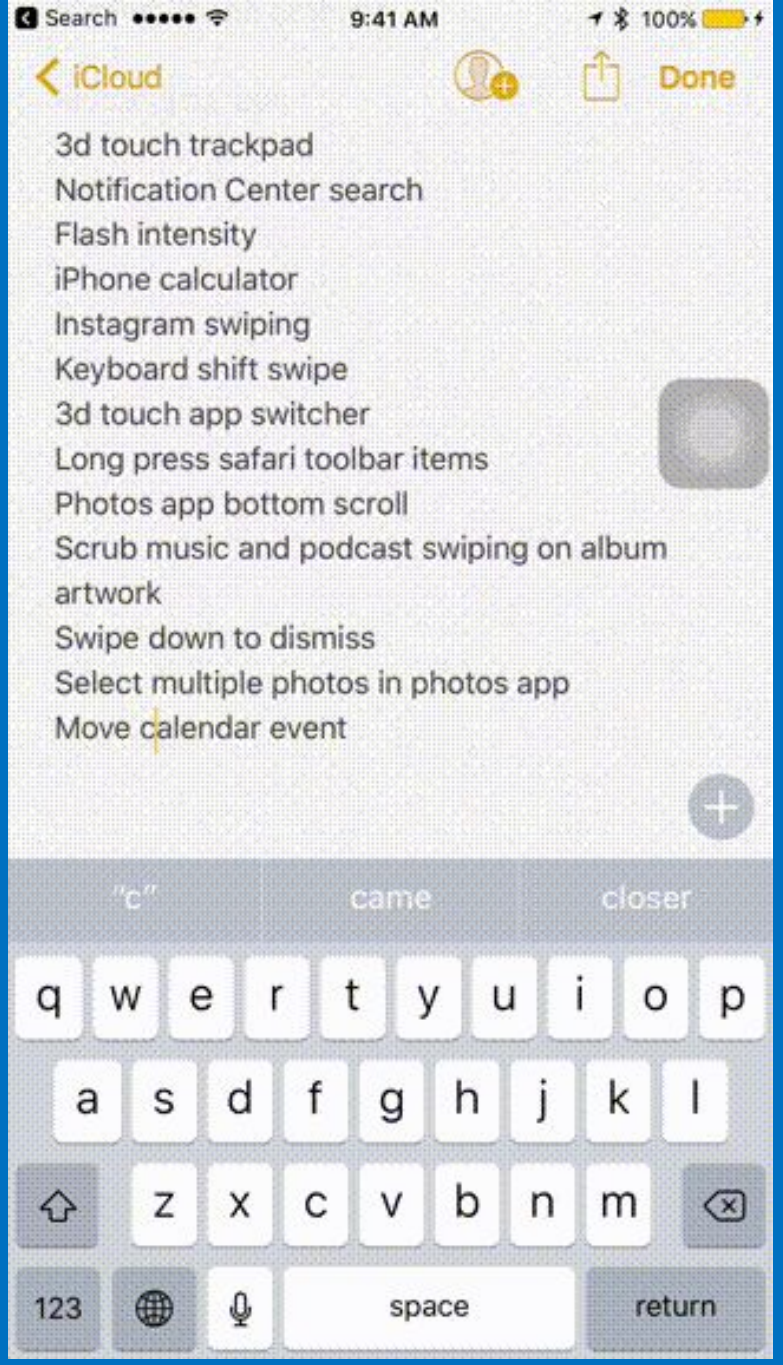
- **Audio Descriptions:** when available, audio descriptions of pictures and videos are played

- **Guided Access:** allows limits to app access, available features, and usage timer

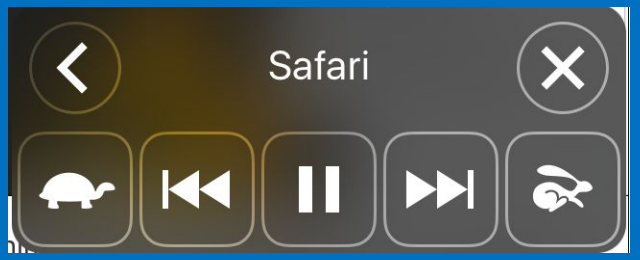
- **Accessibility Shortcut:** launches selected accessibility features when the home button is triple-clicked

*Cool Tip of the Day

- Use 3D Touch to move the cursor around the screen minus that annoying magnifier window
- Tap and hold on keyboard (spacebar works great)
- Move cursor to desired location



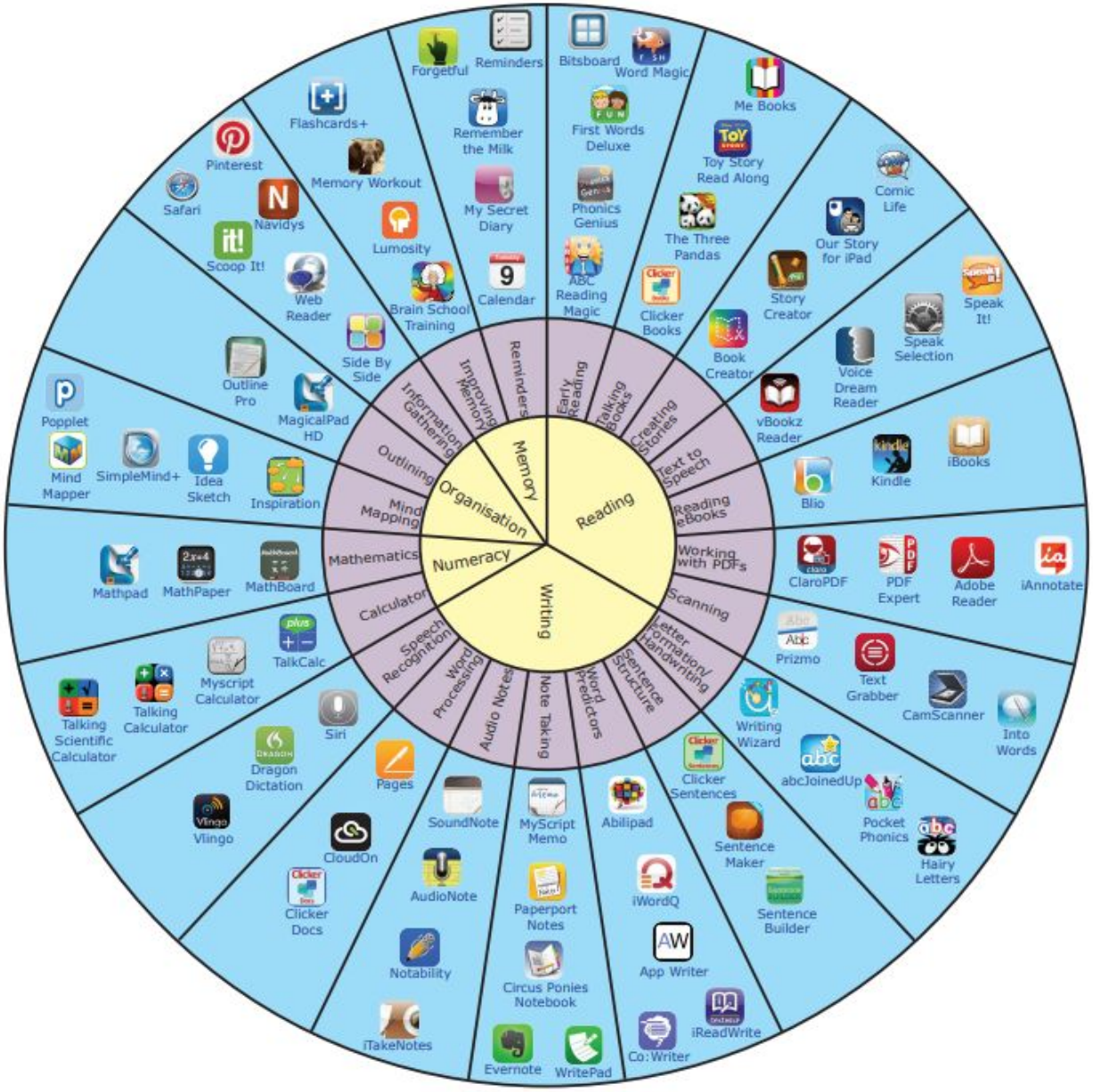
Reading / Speak Screen



Speak Screen and Highlighting with Reader View (iOS native)

- Turn on Speak Screen under Settings => General => Accessibility => Speech => Speak Screen
- Highlight Content, including style and colors, is an option just under Speak Screen
- In Safari, find an accessible web page that shows option for Reader View. On accessible web pages, the address bar will temporarily say “Reader View Available” while loading or on left side of address bar you will see an icon with horizontal lines which is the Reader button. The Reader appearance options button is represented by a small and large letter A and is on the right side of the address bar
- After turning on Reader view you speak screen by swiping down with two fingers from off the screen onto the screen. In other words, rest two fingers on the edge or border of the iPad and swipe down onto the screen and the controller will appear and start reading the page.

iPad Apps for Learners with Dyslexia/ Reading and Writing Difficulties



Frequently suggested:

Book Creator ($5)

Inspiration Maps VVP ($10)

iAnnotate ($10)

Co:Writer (subscription model - $5/month)

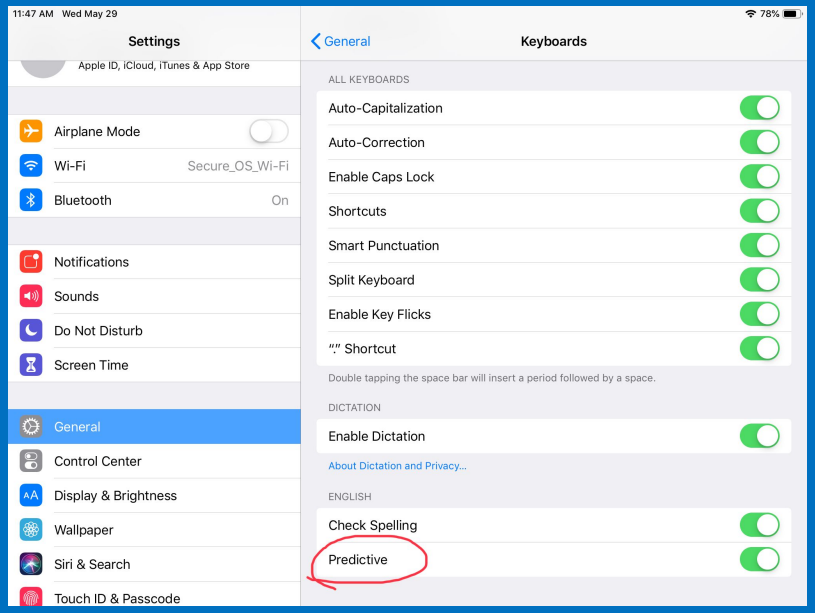
Notability ($10)

Popplet (Free/$5)

https://www.callscotland.org.uk/Common-Assets/ckfinder/userfiles/files/Wheel_of_Apps_V1_0.pdf

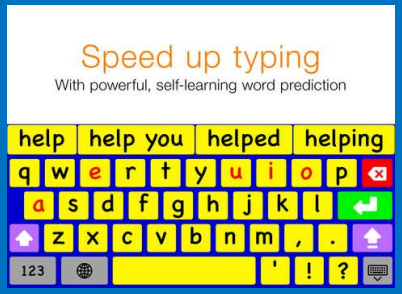
Writing

iOS Keyboard



- Settings -General - Keyboard - Predictive
- Word Prediction
- Speech to Text (requires wi-fi)

Keeble (paid - $24.99)



Additional writing apps that may help….

$4.99

SnapType Pro

Free

Notes - good substitute for Notability or Evernote

Free

Post-It

Free

Pages

Math

Frequently suggested:

My Script Calculator ($3)

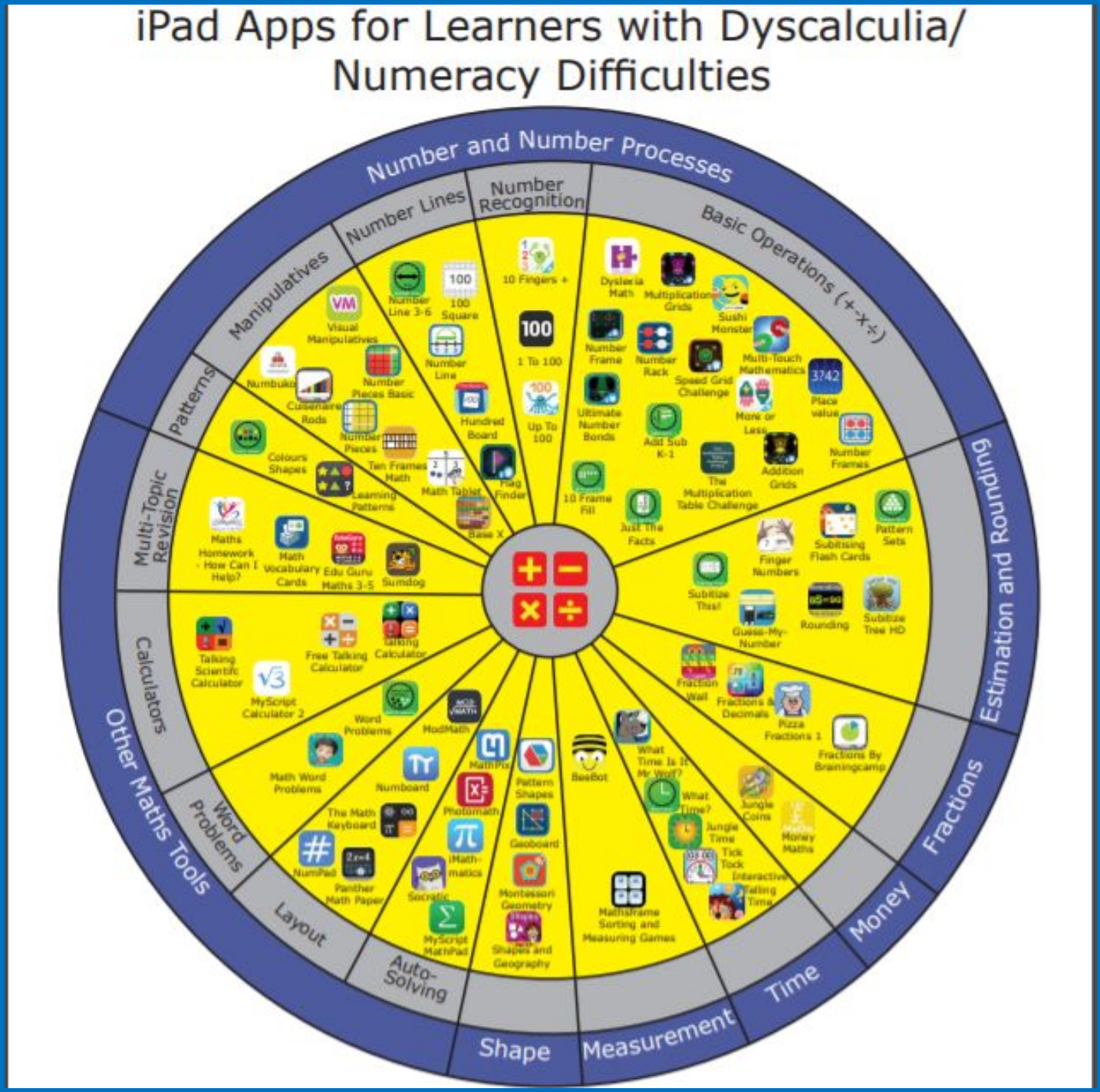
ModMath (Free/$5)

Panther Math Paper ($25)

Photo Math (Free)

Pattern Shapes (Free)

Geoboard (Free) (Chrome extension as well)



Schedules and Agendas

Calendar app

My School Planner (found under iPhone) by Ajay Penmatcha

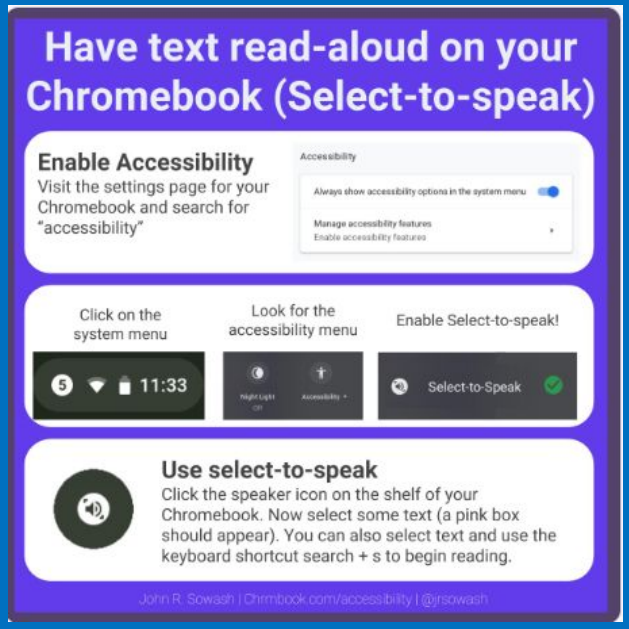
First Then Visual Schedule by Good Karma Applications ($9.99 or the HD version for $14.99)

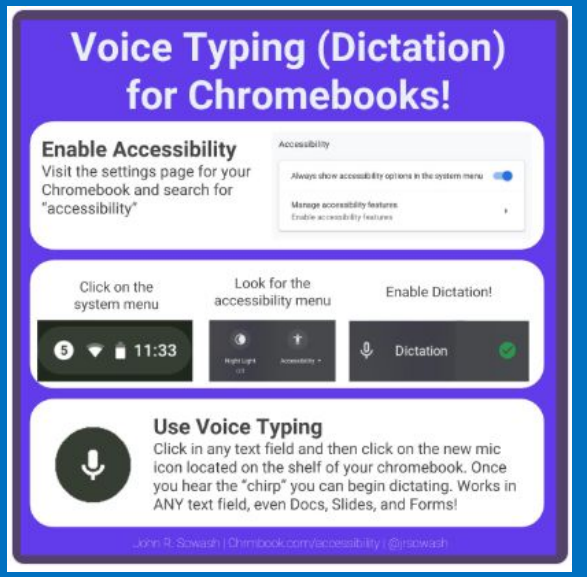
m yHomework Student Planner by Rodrigo Neri

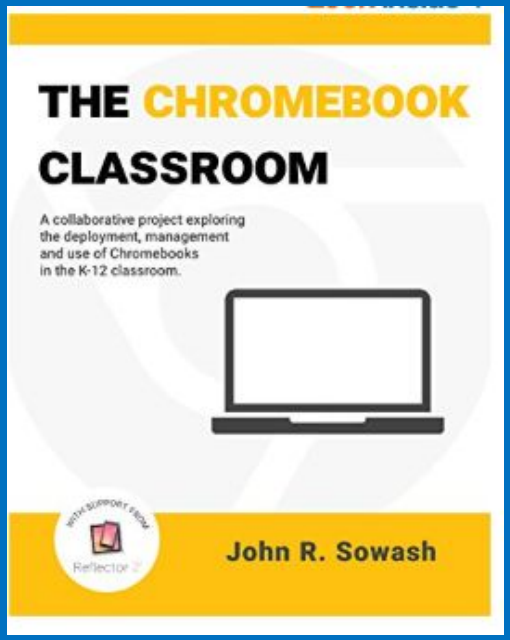
Chrome

Built in accessibility on a chromebook

Overall website: The Chromebook Classroom
https://www.chrmbook.com/

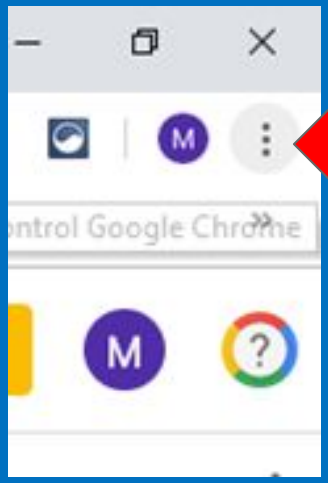




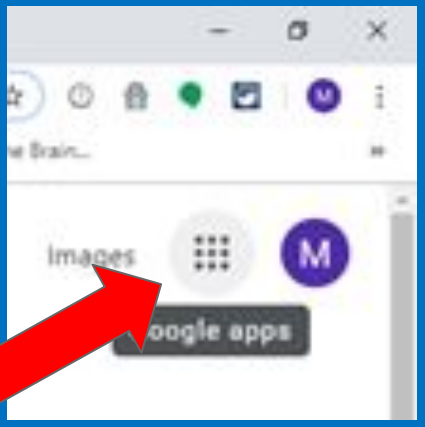


Chromebook Accessibility Features for the Classroom:
https://www.chrmbook.com/chromebook-accessibility/?utm_sq=g1k4mt3z1c&utm_source=twitter&utm_medium=social&utm_campaign=jrsowash&utm_content=chromebooks

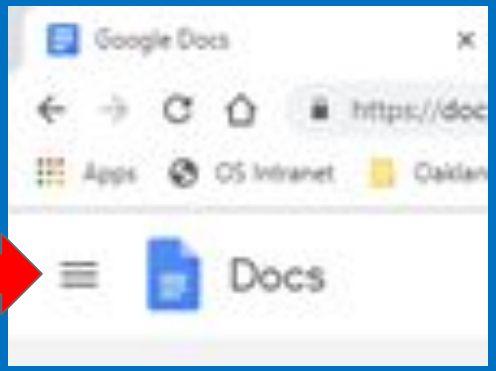
Chromebook basic terminology



Snowman: the indication for settings or options.



Waffle: allows you to access services such as Gmail, Drive, Calendar and your favorite Google applications.



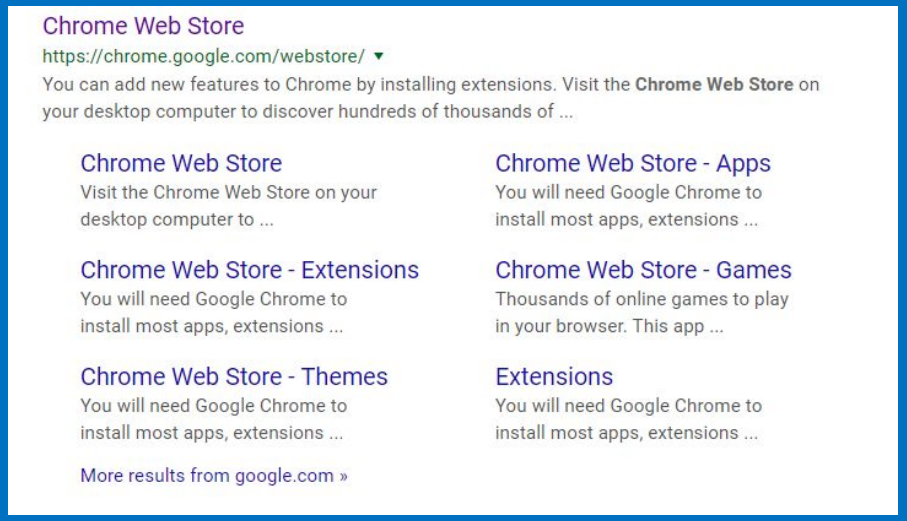
Hamburger/Pancake: Settings options or, depending on where it is, it will give you access to the chrome menu.

Shish-Kabob

Webstore - this is where you will find extensions

If available, find this icon in the upper left hand corner of the screen.

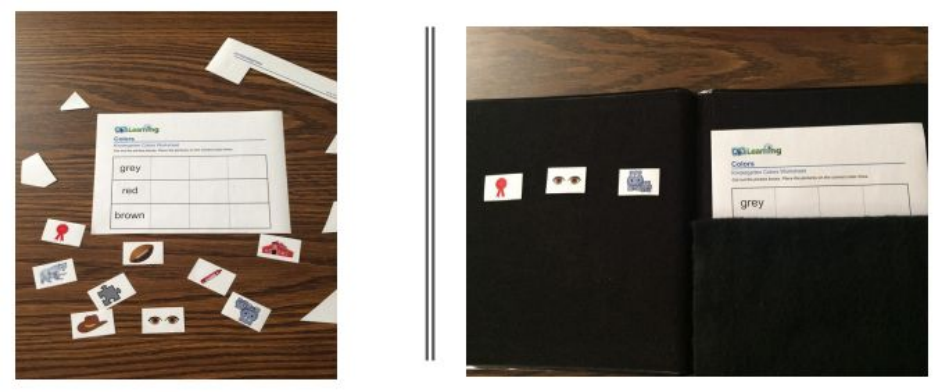
Search for the Chrome Web Store



Vision

Minimize visual clutter

Reduce complexity

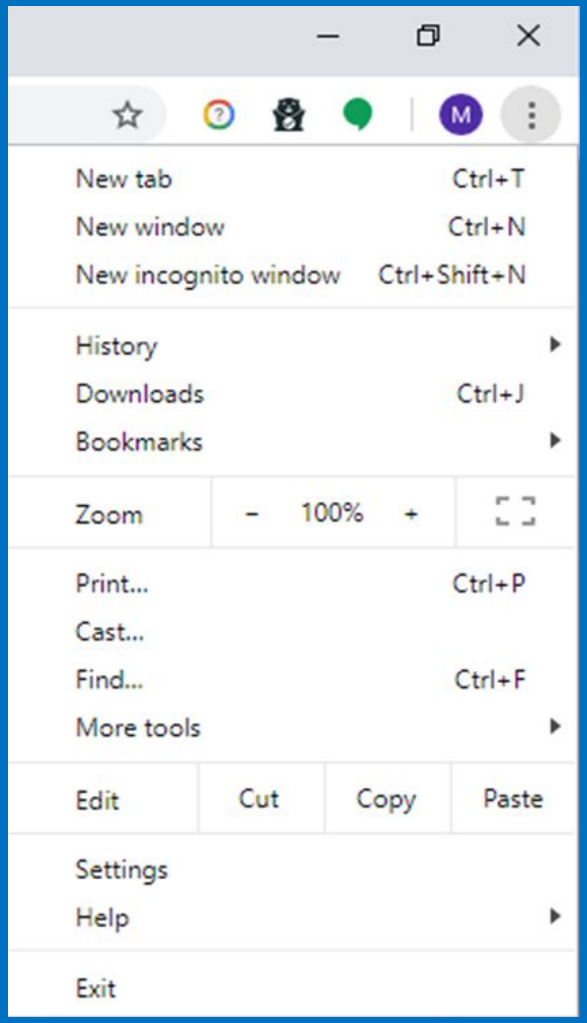


remove.bg

(website - not an extension)

Check out this article:
https://practicaledtech.com/2019/01/20/how-to-virtually-place-yourself-in-front-of-any-landmark-with-free-image-editing-tools/

Zoom



Built in Zoom

Minimal Reading Mode

Offered by: https://xaviesteve.com

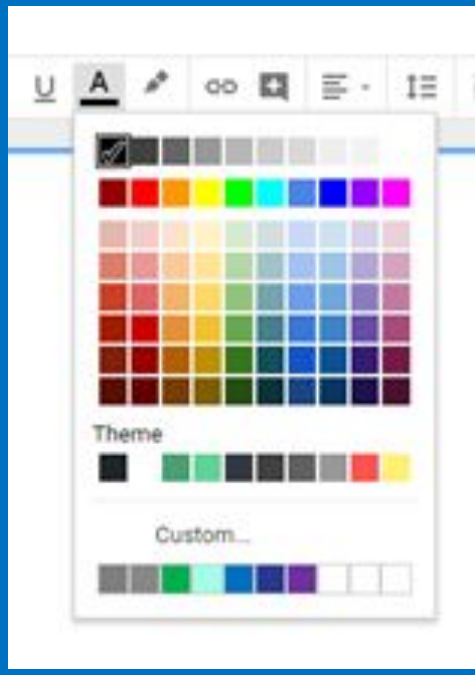
Zoomy

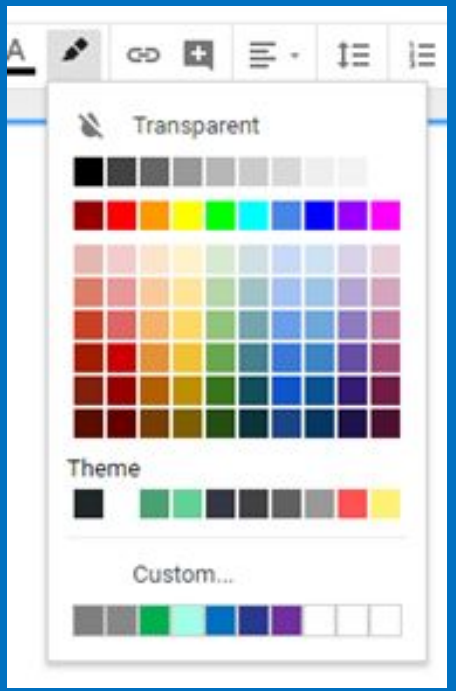
Offered by: alfredomonclus

Colors

Black background with yellow text is the easiest to read; secondary to that is a black background with red text.

Text and Highlight colors





Adjust Screen Brightness

Offered by: joue.quroi

Dark Reader

Offered by: https://darkreader.org

Hearing

Closed captioning in Google Slides

- Open an existing slide presentation from Drive
- Click

Reading

Tracking across a page

BeeLine Reader

BeeLine Reader changes color as the text moves from left to right going across the webpage or Doc. Children follow the colors in order to sweep to the next line down.

Reading Ruler

Use the up and down arrow to manipulate a chosen colored highlight line in order to track on a Google Doc.

ReadingLine (no space)

A light gray line will move up and down on a Google Doc or webpage by moving your mouse or your finger up and down on a trackpad.

Text to Speech

Select and Speak is a bit robotic sounding

NaturalReader

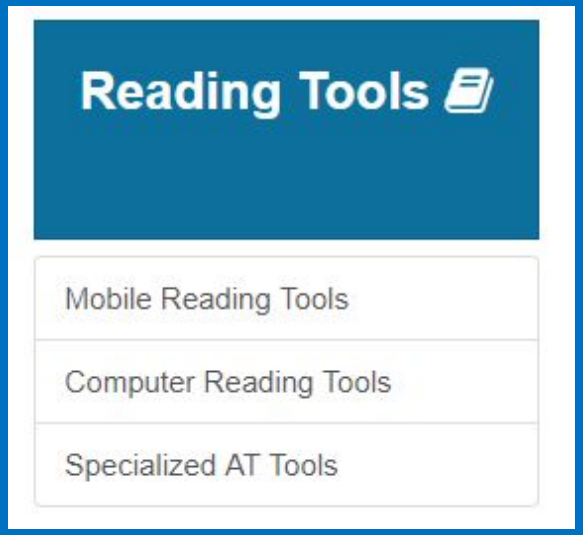
Website: https://www.naturalreaders.com/

Bookshare: www.bookshare.org

Bookshare
A BENETECH INITIATIVE

Who Can Join

In order for you to become a Bookshare® member, an expert must confirm that you have a print disability that severely inhibits or prevents you from reading traditional print materials. Anyone in the world with a qualifying print disability may join Bookshare.



Who Doesn't Automatically Qualify?

People with disabilities such as:

- autism
- intellectual disabilities
- attention deficit hyperactivity disorder (ADHD)
- hearing loss
- dysgraphia
- dyscalculia

and people whose first language is not English **DO NOT QUALIFY ON THESE CRITERIA ALONE** under the laws and agreements that determine Bookshare eligibility.

However, it is quite possible that a person with one or more of these disabilities could still qualify for Bookshare because of an accompanying print disability. For example, a person who is both deaf and blind, or who has ADHD and significant dyslexia, could qualify.

*Dolphin Easy Reader is the most universal

Additional audiobooks

Learning Ally

Human - read audiobooks

$119 / year

Kindle

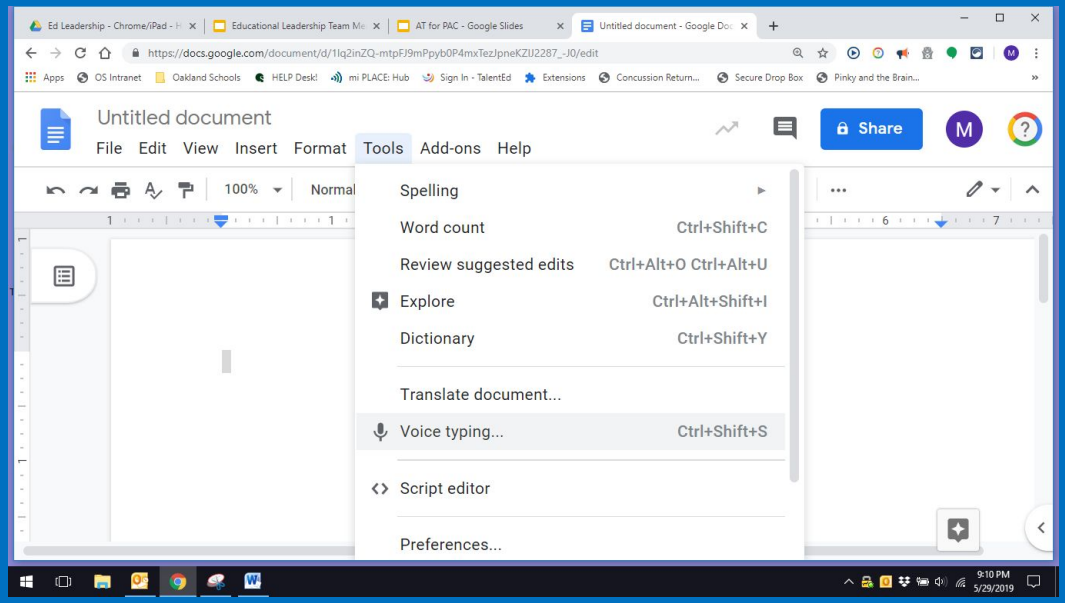
Purchase books through Amazon

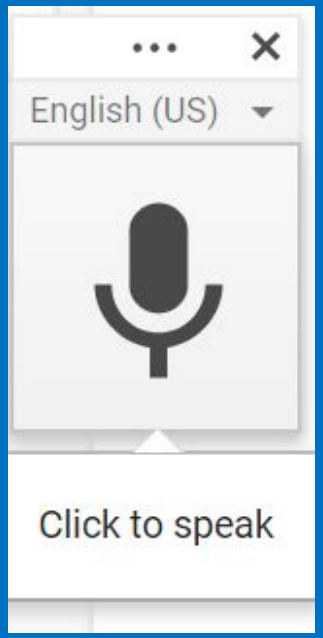
Listen with Speak Screen (free) or if you have an Audible (paid)

Writing

Speech to text

Google docs



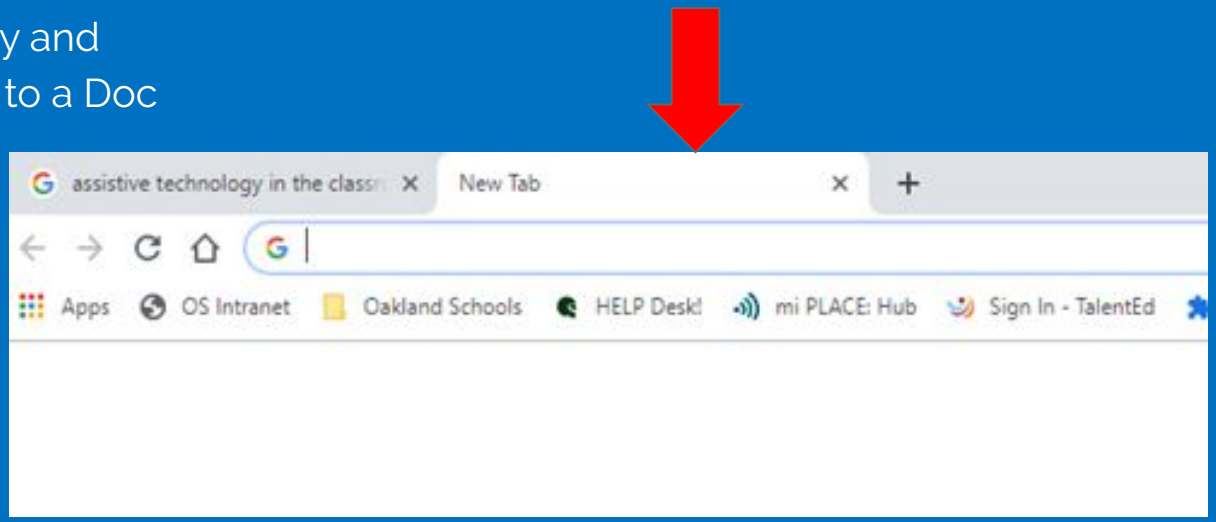


Splitting the screen

(great for helping when a student needs to copy from a website on to a Doc or completing a fill in the blank)

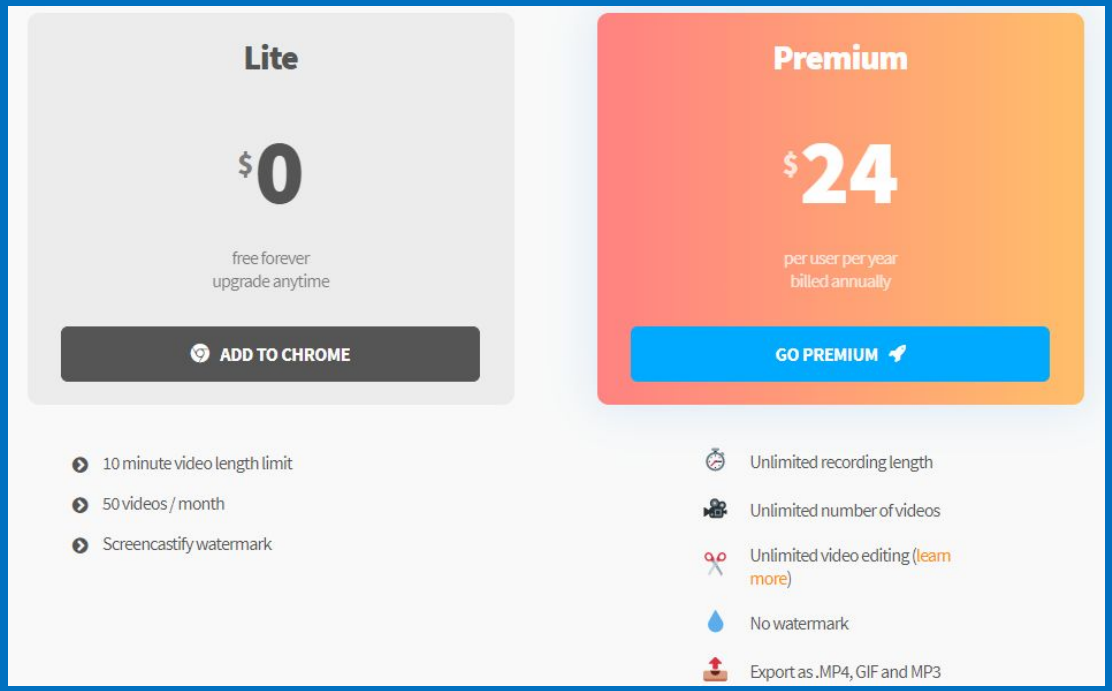
No extension needed!

- If multiple tabs open, click and hold on the tab/screen you want to move
- Pull it off of the immediate screen you are looking at
- Great if you need to copy and paste from an article on to a Doc



Screencasting / Video Recording

Screencastify - https://www.screencastify.com/

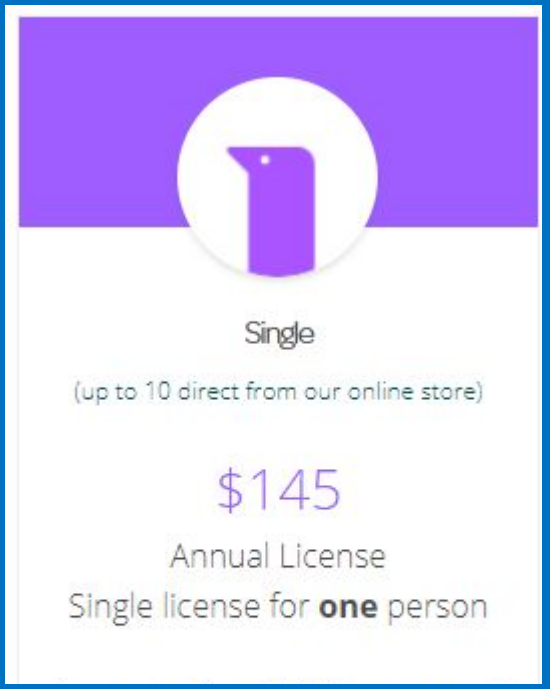


https://support.apple.com/en-us/HT207935

Additional ELA extensions that may be helpful

Read&Write for Google Chrome™

Offered by: texthelp.com



OpenDyslexic Font for Chrome

Offered by: abbiecod.es

Places added weight on the bottoms of letters to indicate direction of letters.

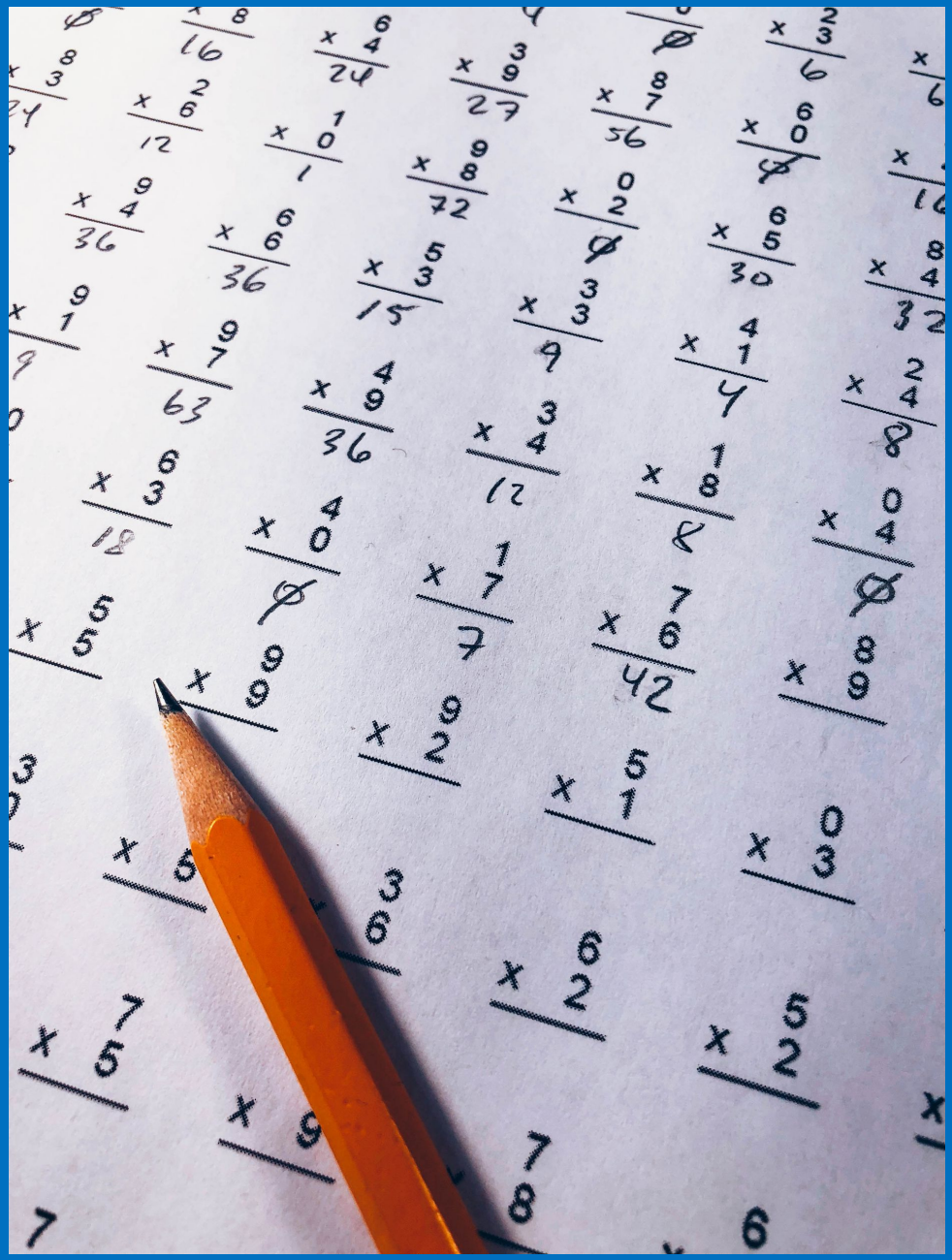
DON·JOHNSTON Human Learning Tools

Website: https://learningtools.donjohnston.com/

Snap and Read is available on Chrome and iPad for text leveling.

CoWriter is available on Chrome and iPad for word prediction.

Math



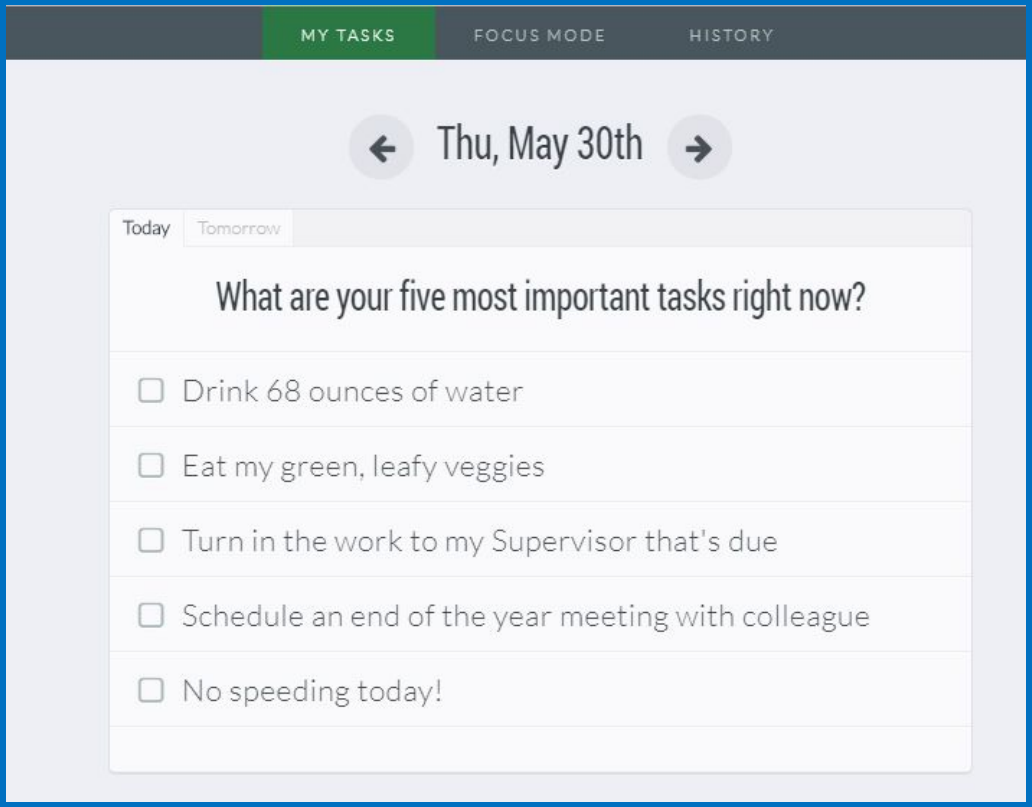
Website:
https://www.texthelp.com/en-us/products/equatio/

Equatio

Focus

This disables users from accessing websites that are keeping them from their goals.

Cross off your top 5 things to do today!



Requires users to stay on a webpage for a designated amount of time

Movement

- Schedule a break in increments of every 10 minutes with the Move It extension

Be sent a notification every 30 minutes to take a break with Micro Breaks

Dyscalculia and a calculator

Assessment

Calculator - Nonstandard accommodation because the calculator is performing the task leaving the child no way to show their learning.

Ongoing instruction and learning

A calculator could be used to support a student for higher level thinking questions where calculation is not the primary skill being taught.

Example:
Word problems - student could use a four function calculator
Why? The focus of the problem is on math reasoning, not basic level computation.

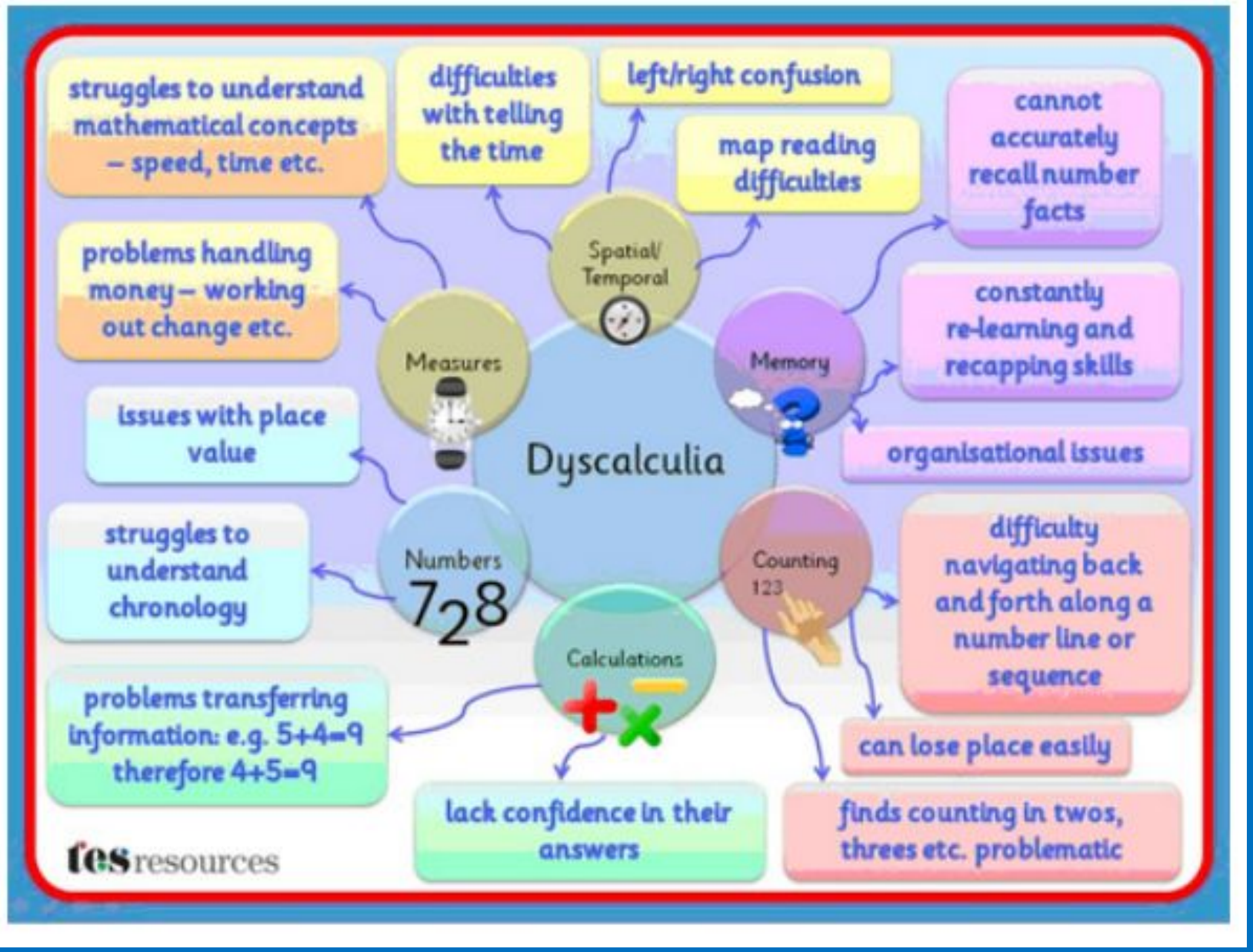
Research validated recommendations for learning disabilities in Math

Ronit Bird and Steve Chinn offer some of the best research around multi-sensory and visual approaches that are designed to enhance the students understanding and ability to retain math concepts.

Teachers and staff also need to know what the students strengths in English Language Arts, as the same strategies can translate nicely between the two subject areas.

Many students with Dyslexia and Dyscalculia have talents in creative problem solving and geometric shape/spatial puzzles. Tools the teaching staff need to consider implementing would be: bar models, cuisenaire rods, bead racks and open number lines.

Oakland Schools has Special Education Math and English Language Arts Teacher Consultants who are able to provide teacher level support at no cost to their district, should the district request assistance.



http://www.dyslexiasa.org.au/wp-content/uploads/2015/12/Maths.pdf

Questions to think about when when asking and advocating for assistive technology

Could my child perform with more accuracy/fluency if the way they provided output to the problem was changed?

What universal design for learning strategies are being implemented, and under which principle (representation, action/expression or engagement)?

Is anyone on the IEP team aware of any assistive technology tools that would help with this area that we are concerned about? What low tech strategies could be implemented at this point?

What are the steps, we as the IEP team, need to take to begin the data collection process for assistive technology?

Who, within the district, has knowledge of the AT consideration process?

What questions do you have?

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