

# Assistive Technology for Individuals with Autism Spectrum Disorder By Carolann Cormier, MS, CCC-SLP and Lisa Fiano, MA CAGS

ccormier@crec.org, lfiano@crec.org

Follow us on Twitter: @CREC\_ATech

Bit.ly - http://bit.ly/2hx26Hb

Assistive technology can help individuals with Autism Spectrum Disorder accomplish educational, vocational and daily living tasks. This workshop will explore tools that can be helpful in the classroom, at home and on the job. Participants will have hands on opportunities to try tools using chromebooks, laptops, tablets and wearable devices.

#### **Assistive Technology Search Engine**

<u>Tech Finder</u> - Allows you to search for tools in various areas, by grade level. It includes grades 9 to 12, however, the results at this time are not extensive.

#### **Reading and Writing Tool:**

Read&Write for Google (on Chrome): The free version provides text to speech for web
pages, translator, TTS for google docs for free. The full version Read&Write for Google
extension works in Google Chrome on PCs, Macs, and Chromebooks and has text to
speech with dual color highlighting, word prediction, word and picture dictionary, study
skills highlighting, and vocabulary builder. To find directions on how to get the free
version go to

chttp://www.freetech4teachers.com/2014/05/read-write-great-chrome-app-that-is-now.html#.U\_FiJrxdVOg. For the form to fill out for the free teacher account go to https://rwchrome.texthelp.com/drive/home/RegisterTeacher.

#### **Reading Tools:**

**Electronic Text (E-Text):** Great resources for text to be read with your tools!

- Dotepub
  - (https://chrome.google.com/webstore/detail/dotepub/okpfiebkkmjcnodegbbbiellepfhoglm ?utm\_source=chrome-ntp-icon) dotEPUB allows you to convert any webpage into an EPUB or Kindle e-book. Compatible with Amazon Kindle, iBooks, iPhone, iPod Touch, iPad, the Nook, the Kobo eReader and the Sony Reader.
- <u>Project Gutenberg</u>: This is a classic etext site. With over 7000 titles, searchable by author or title, it's hard to beat. Project Gutenberg store electronic versions of books in the

- public domain from authors like Shakespeare, Jack London, Lewis Carroll and and Edgar Allen Poe. These etexts are available in the simplest form, "Plain Vanilla ASCII", making them compatible with 99% of the software used around the world. Simple search for the book you want and click on the link to open a plain text version of the book.
- The Digital Book Index: This site is a portal to other etext sites, providing links to over 141,000 full-text digital books from commercial and non-commercial publishers, universities, and various private sites. Most of these books, texts, and documents are available free and many others are available at very modest cost. They site provides an advanced search features author, title, keyword, publisher or subject.
- <u>Bookshare</u>: Bookshare.org is an online community that enables people with visual and other print disabilities to legally share scanned books. As a college student you are granted a free membership.
- <u>Librivox</u> Audio books in the public domain with human voices
- <u>C Pen Reader</u> Pen scanner that reads text aloud in English and Spanish. It allows the
  user to look up words using an online dictionary. The pen also features a voice recorder
  with playback.
- <u>Livescribe Smartpen</u> Allows users to record, write, organize, tag and search notes.

#### **Decreasing Distractions while Reading:**

• Mercury Reader is a Chrome extension that makes websites and articles easier for students to read. This extension strips away ads which can be distraction and it pulls the information from an article into one simple and easy to read document. Images will still appear in the new version and hyperlinks will still work just as they did in the original article. Mercury Reader allows the user to change the size of the text, adjust the font, and select either a light or dark theme. There is also an option to send the text to a Kindle.

### **Comprehension Resources**

- Shmoop -- Guides to about 200 classic school novels Intro (includes a Why Should I care section) Summary, Themes, Quotes, Characters, Analysis, Questions, Photos, Quizzes, Best of the Web, Write Essay and Teaching. Includes a step-by-step essay writing tool. Includes ads but the site is so rich, we can overlook them.
- <u>60 Second Recap</u> (has ads) video recaps of classic literature read in middle and high schools. (ie. Beowolf, 1984, Adventures of Huck Finn, Lord of the Flies
- <u>Planet eBooks</u> Free classic literature to download (middle school and up)
- <u>Poetry Foundation</u> free resource to find poetry by category, by name, by title, by author, or by first line. It's digital, attach a voice and it's now accessible!
- <u>LitCharts</u> 158 free PDF summaries of common books used in Language Arts, includes information on characters, themes, plots and chapter summaries.
- Rewordify.com besides just putting text in to have it rewordified, look at all the features within this program including the settings, study materials, flash cards, quizzes, cloze passages and rewordified books. Make sure that you scroll all the way down to the bottom of the page to see all the other features. The teacher page has lesson plans. You can watch the video (http://rewordify.com/vidsiteoverview.php) and USE the demo (http://rewordify.com/index.php?demo=Y) to learn all the features of this site, including how to set the levels for your rewordified text. Check out the Classic Literature link for

classics that have already been rewordified at <a href="http://rewordify.com/browsearch.php">http://rewordify.com/browsearch.php</a>. Here is a link to a google doc to find important features on the rewordify website: <a href="https://docs.google.com/document/d/1EeLQ6mooIttq\_T2cMrtyBPUuTtUZnHgyn7oGE0I43KU/edit?usp=sharing">https://docs.google.com/document/d/1EeLQ6mooIttq\_T2cMrtyBPUuTtUZnHgyn7oGE0I43KU/edit?usp=sharing</a>

•

#### **Writing Tools:**

A great starting point to look for tools in various areas can be found at CAST's UDL Guidelines, V. 2, Examples and Resources, <a href="http://www.udlcenter.org/implementation/examples">http://www.udlcenter.org/implementation/examples</a>.

**PREWRITING-** Planning is known as prewriting and takes place before any sentence is put on paper Tompkins (2000) suggests 70% of time in the writing process, should take place in planning. Tools for this process are varied.

Research Project Calculator - Assignment Research Calculator found at <a href="http://www.lib.csufresno.edu/tools/arc/">http://www.lib.csufresno.edu/tools/arc/</a>, is designed to: Outline the process of researching and writing, step-by-step, give you an action plan with target due dates, send you an email with the dates each step should be done, provide tips and links to more information for each step of the process and help you finish your assignment on time.



http://lib.uconn.edu/about/get-help/writing/assignment-calculator/ - UCONN's project

#### Finding a Topic to Write About

- Watch Know Learn Instructional videos WatchKnowLearn is a super-directory of over 50,000 free educational video links that are organized by subject matter, for ages 3 to 18.
   Many of the videos are appropriate for older students.
- <u>Hippocampus.org</u> Over 6,800 instructional videos, organized by subjects appropriate for middle school to college.

#### Developing a thesis statement and outline for persuasive essays

- ElectraGuide <a href="http://ozline.com/electraguide/thesis.php">http://ozline.com/electraguide/thesis.php</a> is a tool to help high school students:
  - 1. find a topic (see example topic questions?)
  - 2. create a good thesis statement (see an example?)
  - 3. and generate an outline (see an example?)

To use Thesis Builder, you'll need: a topic, opinions about the topic, reasons *for* your opinion and a main reason others might *disagree* 

#### **Research Gathering Tools**

- <u>UDL Strategy Tutor</u>
- Reference Portals
- NoteStar an Internet utility to assist in the preparation of research papers. Teachers and students can set up research projects with topics and sub-topics. Students may then take advantage of NoteStar's many features to collect and organize their notes and prepare their bibliography page.
- <u>EverNote</u> Powerful note taking tool; capture, clip, save and share watch the video but think of the education applications: <u>EverNote as a Research Tool</u>.
- Save to Google Drive (<a href="https://chrome.google.com/webstore/detail/save-to-google-drive/gmbmikajjgmnabiglmofipeabaddhgne?utm\_source=chrome-ntp-icon">https://chrome.google.com/webstore/detail/save-to-google-drive/gmbmikajjgmnabiglmofipeabaddhgne?utm\_source=chrome-ntp-icon</a>) The Save to Google Drive Chrome extension helps you save web content or browser screenshots to your Google Drive.

#### **Put Ideas in a Sequence**

- Graphic Organizers some you will have to create a free account to use.
  - o Apps:
    - Idea Sketch offers a linear as well as a graphic view as an organizing tool
    - SimpleMInd + mind mapping app
    - <u>Inspiration</u>- can make maps and/or outlines using the extensive template library or create your own from scratch
  - Ohrome Extensions:
    - Mind Mup Easy to use mind mapping/brainstorming tool, offers Google Drive or Dropbox storage, video tutorial at https://www.voutube.com/watch?v=SIdvTMOM-aM
    - <u>Lucid Chart</u> collaborative diagrams for mind mapping, brainstorming.

- o Computer Options:
  - MindMeister.com free trials
  - Mindomo.com you need to first create an account
  - <u>Bubbl.us</u> you need to set up an account to use this program. Examples of various mindmaps can be found at <a href="https://bubbl.us/examples">https://bubbl.us/examples</a>. The software allows you to insert photographs
  - <u>LucidChart.com</u> free trials, free for educators (make sure you sign in for Lucid Chart for Educators), and import into Google Docs
  - Cacoo.com free, you need to create an account
  - <u>SpiderNet</u> -Brainstorming/mind mapping tool. Can add documents, images, maps, share with other collaborators. Watch the two minute video tutorial <u>here</u>.
  - <u>Text2MindMap</u>- Create a simple idea web by simply typing the ideas into an outline.
  - **Exploratree** offers a number of thinking guides and more.
  - <u>Creately</u> offers online diagramming and collaboration. Access the <u>free</u> version here.
  - <u>Diagramly</u> easy to use, includes built-in graphics
  - <u>Wisemapping</u> mind maps, share with others
  - <u>Graphic Organizer Templates</u> 40 downloadable templates to use in a word processing program, quick
  - <u>Graphic Organizer Templates</u> can be downloaded in Word or as PDFs or HTML. Include templates such as Character Maps, Concept Maps and StoryBoards (Note: not all templates are editable online. It appears to depend upon who created them)
  - Prezi.com Unique way to present information/ideas and concepts, interactive flow chart, MODERATE to use
  - Free Mind mind-mapping tool
  - Recall Plus Students can organize their notes, create flashcards, make use of 3D tools and more in this great mind mapping tool. It is downloadable.
  - Gliffy Create and share diagrams on the Web
  - Best4C-(for upper grades)
  - <u>CMAP</u> concept maps
  - MyStudyBar is a free Windows program that enables the user to view both the mind map and outline format at the same time. Add hyperlinks and pictures and then editing them. The appearance of your document can be customized and exported into other documents. The program contains many other features (see "Voice Feedback" and "Word Prediction"). Video tutorials for each feature is on the website.

    (http://eduapps.org/?page\_id=7)
  - Links to additional graphic webbing tools can be found at <a href="http://pinterest.com/cmcormier/graphic-organizers/">http://pinterest.com/cmcormier/graphic-organizers/</a>.

#### **Citation Tools**

NoodleBib MLA Starter

- NoodleBib Express
- EasyBib
- <u>Bib Me</u> Bibliography Maker
- Citation Machine >
- Zotero Open source citation manager, with syncing, collaboration, and an easy way to
  collect references (browse to a page with citation information and click a button). Uses
  plugins for Firefox, Open Office, and Microsoft Word. Generates inline citations and
  bibliographies in any style with the click of a button.
- Research & Documentation Online Download sample papers (MLA & APA styles)

#### **Voice Recognition**

- <u>Dictanote</u>: Chrome extension for TTS on iDevices you can use the Dragon Dictation application or SIRI, built into iPad 3 or newer (if it is available within your application you will see a microphone on the on-screen keyboard).
- https://talktyper.com/
- SIRI embedded in iOS devices
- Voice recognition in Windows
- Voice recognition in Apple OS
- <u>Voice Typing</u> under Tools in Google Docs

#### **Editing**

- Editing Tools for Grammar and Spelling
  - <u>GingerSoft</u>--download free version or use bare bones online. Video of Ginger: <u>http://bit.ly/gingeroverview</u>
  - GhotIt--use the online bare bones version by copying and pasting your text into the "Try It" section on their home page.
  - Grammarly- Online Grammar Checker, instant reports with no log-in necessary
  - Slick writing editing tool that allows you to customize 30 options for the website to analyze. You can write in the text box on the website or copy/paste your text into it
  - Paper Rater offers grammar, spell-checking and plagiarism detection. (middle school and above writing only)
  - Language Tool open source proofreading tool
  - No Red Ink free tool to increase grammar and writing skills with high interest topics. The website allows teachers to sign up students, track individual and group data and assign specific lessons to specific students. It also allows you to sign up on your own as a student. Tutorials are available on the site.

## **Math Resources**

 Handwriting Issues: <u>eQuat10</u> - an extension that adds math characters to the Add-Ons in Google Docs. You can use speech to text to input problems (though it doesn't work correctly for all problems.)

#### Math Video Web resources:

Khan Academy (<a href="https://www.khanacademy.org/">https://www.khanacademy.org/</a>) offers web videos in a variety of areas, including multiple math subjects. Math subjects include practice problems and if the student is signed in, it will keep track of the completed practice problems and watched videos. See below for the subjects covered.

Math by subject Math by grade Science & engineering Computing Arts & humanities Economics & finance Test prep



Early math Arithmetic Pre-algebra

Algebra Geometry Trigonometry

Precalculus Statistics & probability Calculus

Differential equations Linear algebra Math for fun and glory

The information below was taken from **Free Technology for Teachers** at <a href="http://www.freetech4teachers.com/2017/04/10-math-tutorial-youtube-channels-not.html#.WP5F">http://www.freetech4teachers.com/2017/04/10-math-tutorial-youtube-channels-not.html#.WP5F</a> OIPvvUo.

- Yay Math! (https://www.youtube.com/user/yaymath) features an excited teacher teaching
  mathematics lessons to his students. The videos capture just the teacher and his
  whiteboard with some feedback from students. The videos cover topics in Algebra and
  Geometry. You can check out the Yay Math! companion website to learn more about
  Robert Ahdoot, the teacher featured in the videos.
- WowMath.org (<a href="http://www.wowmath.org/">http://www.wowmath.org/</a>) is developed by high school mathematics teacher Bradley Robb. His <a href="YouTube channel">YouTube channel</a> has more than six hundred videos covering topics in Algebra and Calculus. You can access the videos on a <a href="mobile version of WowMath">mobile version of WowMath too.</a>
- <u>Patrick JMT</u> (<a href="https://www.youtube.com/user/patrickJMT/videos?view=1">https://www.youtube.com/user/patrickJMT/videos?view=1</a>) offers of hundreds of videos covering topics in Algebra, Trigonometry, and Calculus. The channel also includes tips for answering math questions on the SAT and on the GED.
- <u>Bright Storm</u> (<a href="https://www.brightstorm.com/">https://www.brightstorm.com/</a>) is an online tutoring service. On their <u>YouTube channel</u> Bright Storm provides hundreds of videos for Algebra I, Algebra II, Trigonometry, Precalculus, and Calculus. Bright Storm also offers some SAT and ACT prep videos.
- The Open University is one of my go-to YouTube channel for all things academic. A
  quick search on The Open University reveals <u>seven playlists</u>
  (<a href="https://www.youtube.com/user/OUlearn/videos?query=mathematics&view=1">https://www.youtube.com/user/OUlearn/videos?query=mathematics&view=1</a>) that
  include lessons in mathematics. The lessons that you will find in these playlists are more
  theoretical than they are "how to" lessons.
- <u>The New Boston</u> is primarily a channel for computer science lessons, but it also has some good playlists of <u>geometry</u>
   (<a href="https://www.youtube.com/playlist?list=PL53A392AD7B7FE261&feature=plcp">https://www.youtube.com/playlist?list=PL53A392AD7B7FE261&feature=plcp</a>), algebra (<a href="https://www.youtube.com/playlist?list=PLA5A1D544934F701B&feature=plcp">https://www.youtube.com/playlist?list=PLA5A1D544934F701B&feature=plcp</a>), and basic mathematics lessons.
- Math Doctor Bob's YouTube channel
   https://www.youtube.com/user/MathDoctorBob/videos?view=1)
   offers nearly 700 video lessons on statistics, algebra I and II, calculus, geometry, and much more. The lessons feature Doctor Bob giving the lesson in front of a whiteboard so you see him and don't just hear his lessons.

# **Executive Function Apps and Extensions**

Icon	App Title	App Description
	Nudge - Reminders	iOS, Nudge allows you to set reminders for anything in your life and will keep reminding you until the task is done.
	<u>Timer +</u>	iOS,
	Any To Do List	Easy to use, will provide alerts based on your location and task.
	Any.do  BZ Reminder	Android, Monthly fee, a decent to-do list app that comes with various task customizations, cloud syncing between devices, reminders based on both time and location, and more. The app also uses Material Design. You can also use this for both work and home tasks and reminders. It has direct integration with the developer's other app, Cal Calendar. It's a good one-two punch for reminders.  Android - A simple to-do list and reminder app. The app has a robust, but short list of features. You can color code tasks and reminders for easier organization. It comes
		with Android Wear support, alerts, recurring tasks (for taking out the garbage every week), and even set hourly reminders for things like drinking water. It also has widgets, a simple calendar and more. It's one of the best simple reminder apps for personal use
	Google Keep	iOS, Droid and Chrome, can work across devices, it features a collaboration features that let you share notes with others. You can also take text, list, photo, audio, and video notes. You can change the note colors for easier organization. There are other organizational features. You can set notes to pop up at certain times or places. That means you can use this for reminders.
	Google Now	It's one of the more useful reminder apps.  iOS, Droid and Chrome, can work across devices

	Class Organizer	Use one app to organize all classes. Take notes, record lectures, manage homework and exams, store and calculate grades in one app.
	iStudiez Pro	Same as above without the note taking features.
	BugMe!	Create quick notes on a virtual corkboard and set alarms or alerts. Notes can also "stick" to the launch screen.
UNSTUCK	Unstuck	Decision making app Executive coaching
	30/30	Visual task manager
	<u>StayFocusd</u>	Chrome, StayFocusd is a productivity extension for Google Chrome that helps you stay focused on work by restricting the amount of time you can spend on time-wasting websites. Once your allotted time has been used up, the sites you have blocked will be inaccessible for the rest of the day. It's highly configurable, allowing you to block or allow entire sites, specific subdomains, specific paths, specific pages, even specific in-page content (videos, games, images, forms, etc).
	Strict Workflow	It works much like StayFocused only there is a work time and break time. Sites are blocked/allowed during the set work time and then everything is open during the break time.
	Evernote	Planning Goal Setting Organization will provide alerts based on your location and task.

Dayboard	Dayboard - Chrome	task management
P	Lumosity - Break - Chrome	attention memory response inhibition