Educational & Home-based Technology for Individuals with Autism

Christian Karter, MA
Educational Technology
Specialist

Who am I?

- Monarch Center's Educational Technology Specialist.

- I have worked for Monarch Center for Autism for 13 years. In the classroom and in my present role.

- I also worked for Monarch Teaching Technologies and helped design early elements of VizZle.

- My chief responsibilities are the data system and introducing new technology into the classrooms.

- Contact karterc@bellefairejcb.org,

Christian Karter MA

I am also a parent

- Our son Logan was diagnosed with Autism at the age of 22 Months. He is now 5.

- We noticed signs around 16 months.

- Logan receives a mix of behavioral and speech therapy.

- We introduced an iPad with a mix of Educational Apps and Speech apps at the Age of 2.

- Logan gained language at about 3 ½. He is currently into maps and wants to use a GPS everywhere we go so he can learn all the different street names and routes.

Goals

- Through this presentation we will cover different types of technologies that are used in the educational and home settings.
- We will discuss how to maximize the individuals potential with this technology.
- The Technologies we cover will assist individuals with communication, organization, instruction, prompting, and staying focused.
- Current device apps and their uses.
- Home automation technologies and how they benefit individuals with Autism.

Technology – Statement

- Technology is like an instrument. The results/performance requires practice and knowledge.
- For best results you need to be adept in the technology and be able to support those who use it.

Classroom
Technology

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SMART or Promethean Boards

- SMART or Promethean boards are a great way to engage a group.
- The technologies between the boards are pretty similar with a difference in software.
- At Monarch Center we use 25+ SmartBoards.
- Staff build lessons on the SmartBoard Notebook software or VizZle and share them with each other.
- These lessons are customized to the IEP goals and objectives they are working on with the students.
- Smart Light Raise
- Ability to project up to a 100" display .
- Differentiates between touch and pen use.
- Has built in speakers and microphone.
- 2 to 4 touch points depending on the model.
- No actual board to damage.
- Access to Smart's over 60,000 learning resources

**SMART** 6000 Series

VS

Promethean Activ Panel

Tablets - Apple iPad

- For an Individual basis schools use Chrome books other tablets. This a great way to put the information in front of the children.

- Chrome books can be limiting due to necessary internet access and unable to install apps for offline use.

- At Monarch Center we use approximately 180 iPads.

- The iPads are assigned to Teams, SLPs, Behaviorists, OT's, and students directly.

- We use a mix of different versions of iPads.

- iPads have been a great boon to our schools educational resources as it allows us to be more mobile with our teaching.

- They serve as a wide variety of uses such as educational apps for the student's, reinforcers, visuals such as schedules and token boards, data collection, photography and video capturing, and much more.
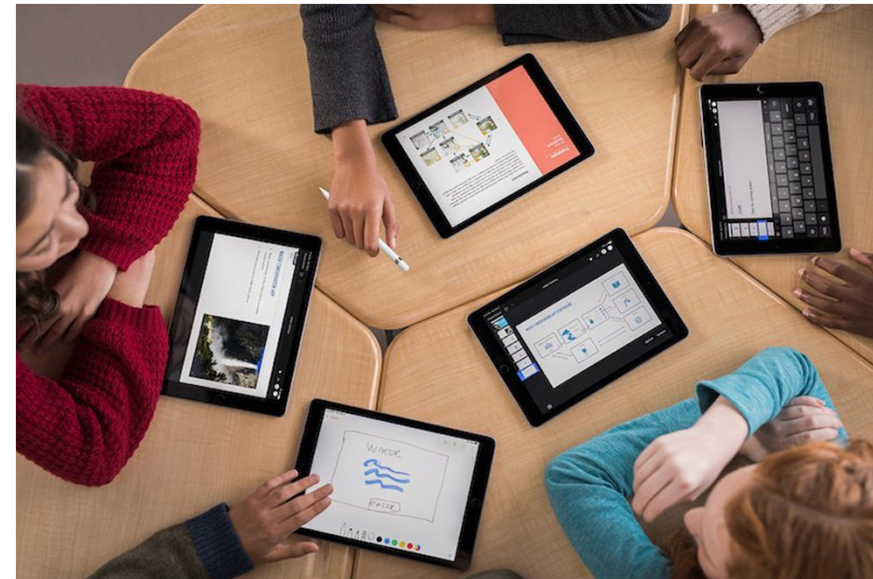
Guided Access

- Guided Access helps you lock an app into place. This is great when setting an iPad as a dedicated AAC device.
- Parts of the screen can also be set to disable button in apps or limit the functionality of an app.
- How to and steps - https://support.apple.com/guide/ipad/guided-access-ipada16d1374/ios
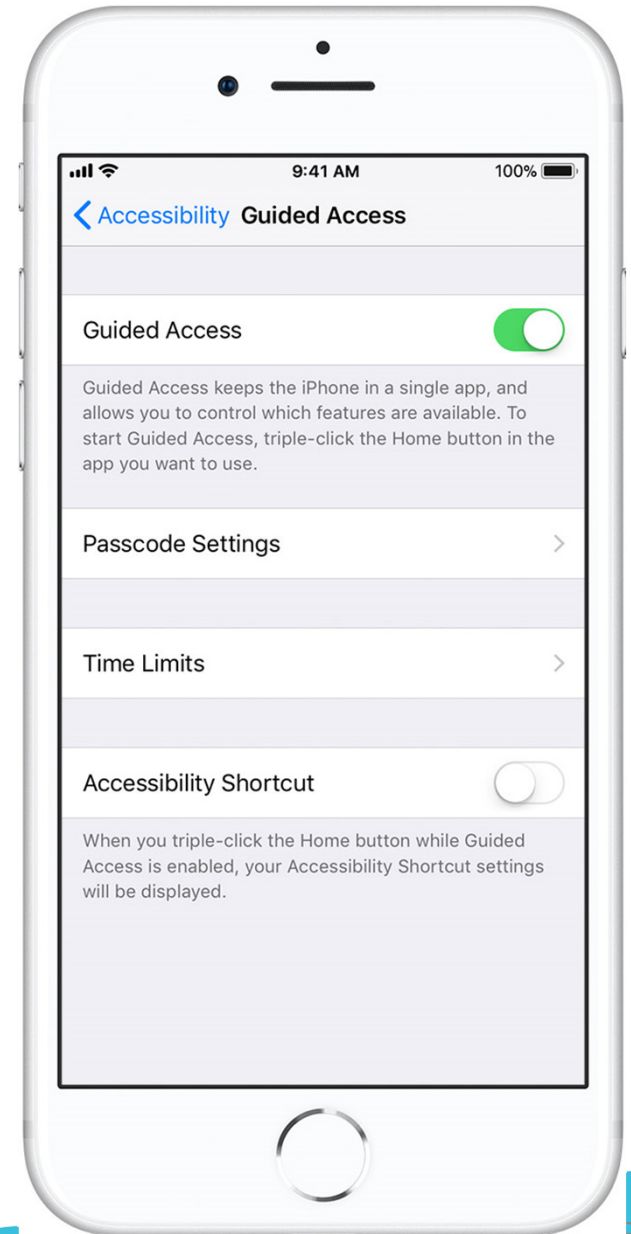
iOS Screen Time

- iOS screen time was previously the restrictions settings, but now it has parental control features that allow you to monitor how much time the individual is using their device.

- Breakdowns by individual apps can be seen of how much time has been spent on them.

- You can have weekly reports sent to you.

- Article explaining Screen Time and how to set it up.
    - https://support.apple.com/en-us/HT208982

- Recommend setting up an iCloud Family account with yourself as the Moderator - you can monitor other accounts and modify restrictions from your own device.

- Setting up Family Sharing
    - https://support.apple.com/en-us/HT201088

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MDM - JAMF

- An MDM (Mobile Device Management) allows you to manage many iPads through one interface.

- They allow you to set policies, add restrictions, deploy apps, update the devices, keep them organized, and find lost or stolen iPads.

- JAMF has a feature called Self Service, which allows you to make apps available to download for your staff.

- At Monarch Center we use JAMF for our MDM solution.

- There are many different MDM's Jamf, Meraki, Maas360, AirWatch, and many more.
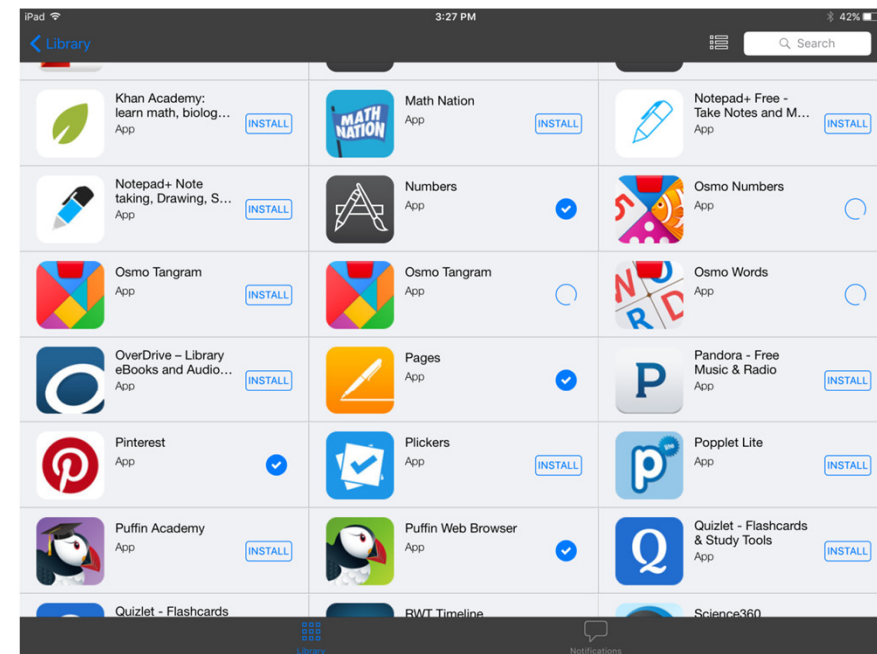
Scosche Magic Mount

- Magnetic Mounts, safe for the iPad.
- At Monarch Center we have them on the back of most of the iPads.
- A metal piece with a 3M adhesive sticks to the iPad. The Magnetic part of the mounts can be placed on the walls or other surfaces.
- Great for bathrooms and even desks.

Price: $10-$40

Home Technology

Video: Kevin Uses Tech at Home to Stay Safe

Home Automation Technology & ASD

- Individuals with Autism can greatly benefit from technology integration into their home settings to help communicate, teach, and keep individuals safe.

- For the home there is standalone technology that works on its own and home automation technology that works systematically to integrate with each other.

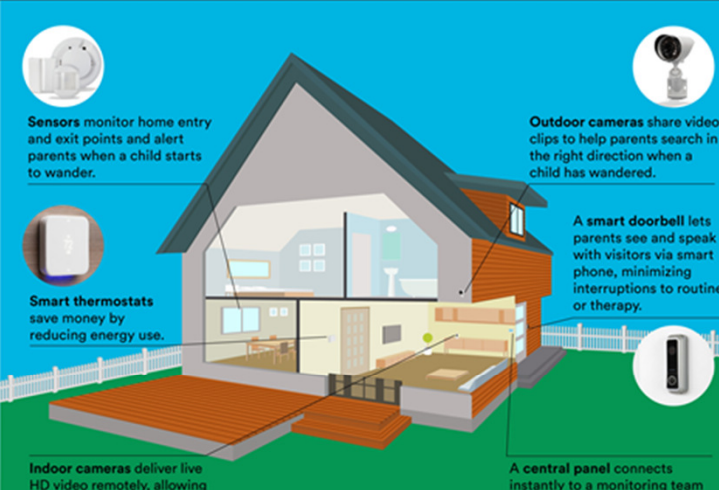| Event or trigger	Action From Tech	And then next
Door opens, sensor is or camera is tripped, or Timer finishes	Voice gives instructions, Lights change colors, items turn on	New timer is set, or additional automation actions happen.

Smart Homes for Autism

- Smart home technology has the potential to keep an individual on the Autism spectrum safer and more regulated within their home environment.

- Smart homes can provide such things as automatic door locks, door and window sensors, motion detectors, indoor cameras, doorbell camera, light controls, room to room audio and communications ability.

- Companies such as Vivint Smart Home and Control4 have been specializing in Autism friendly setups.

- http://www.youtube.com/watch?v=6EsJw5-D2hY&t=0m48s

Smart Home Technology Helps Keep Children With Autism Safe And Secure

One in 68 children are now diagnosed with autism spectrum disorder. It's common for children with autism to wander – smart home technology offers their families peace of mind.

Sensors monitor home entry and exit points and alert parents when a child starts to wander.

Outdoor cameras share video clips to help parents search in the right direction when a child has wandered.

A **smart doorbell** lets parents see and speak with visitors via smart phone, minimizing interruptions to routines or therapy.

Smart thermostats save money by reducing energy use.

Indoor cameras deliver live HD video remotely, allowing parents to monitor children from a distance.

A **central panel** connects instantly to a monitoring team that can alert emergency personnel in an urgent situation.

Brought to you by:
Vivint Smart Home
Official Safety Sponsor
of Autism Speaks

49% of children with autism wander from safety. 43% of their parents report losing sleep fearing their child will wander at night.

53% of children with autism wander long enough to cause significant worry.

65% of wandering incidents involve a close call with traffic.

62% of parents say worry of wandering prevents them from attending activities away from home.

Parents seek to help their children with wandering with routines and uninterrupted intervention for several hours every day.

Caring for an individual with autism can require additional financial resources.

Sources:

Smart Speakers

- There has been a growing trend of smart speakers and devices being used in the Autism community to encourage & facilitate communication.

- From an educational stand point the cause and effect experience – helps individuals engage and interact with these devices.

- Variety of companies device speakers.
  - Google –Google Home
  - Apple – HomePod
  - Amazon – Echo - Alexa

Video -Amazon Echo Alexa Skill Blueprints - The Autism Cafe

Amazon Echo

- Amazon Echo product line consists of multiple different size speakers and some with displays.
- Amazon's voice is known as Alexa
- Amazon Echo is made to be placed around the house, they can be used in conjunction with each other.
- From an echo you can set alarms, create lists, answer questions, play music, it answers questions for you, and acts as a personal assistant.
- Blueprints – precanned scripts that allow you to give Alexa new skills. Can even tell it to activate a robot vacuum and tell it to clean specific rooms.
- Works really well with IFTTT (If this then that).
- With Amazon integration adults with autism can also use the device to order items they may need.

Dots start at $49 but often run discounts.

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Autism Home Camera Systems

- Wireless Cameras offer a great variety of support to individuals on the spectrum.

- They can be used for security purposes, triggers for other technology, to help grow independence and for observational use.

- Individuals with Autism can often have behavior plans, and a licensed behaviorist may be working with a famil on this plan. It is beneficial when behaviors occur to know what happened prior to the behavior and how those around the individual help to mitigate the behavior. Imagine as a behaviorist not going on just written accounts but being able to see the events unravel.

Price: $299

Arlo Wireless Cameras

- Arlo is one of the leading developers for home camera systems.
- To start you can buy a set that has a base station and usually comes with a couple cameras. You can then add on more cameras. All of the cameras are wireless using WiFi, and can be battery powered, solar powered, or wired into power.
- They support 2 way communication
- Recording to cloud service w/ Subscription
- Connects with IFTTT

Price: $150-$500

Eufy Cameras

- Eufy is Home Technology Branch of well-known battery company Anker.

- In the last year they have started to delve into home technology.

- They have built impressive cameras and other home technology.

- Eufy Camera boast a 1 year battery life, (rechargeable) depends on recording schedule.

- Integrates with Amazon Alexa.

- Pro: All recordings are local to SD card and thus private

- Pro Amazing camera quality and supports night mode.

Smart Things Sensors

- A 2012 study found that 49% of all children with autism attempt to wander or bolt from a safe, supervised place.

- Smart things sensors allow you to place sensors on your doors, windows, and even cabinets.

- There are even motion sensors.

- It can then activate services or notify of these events.

- Works with IFTTT

Price: $30-$200

Phillips Hue

- Hues are smart light bulbs.
- They can be used to change the color of a whole room.
- If prompting an individual on the spectrum sometimes it is difficult to direct their attention to the prompt.
- Hues paired with IFTTT can create schedules in which this smart device can change colors at a particular time or when an event happens.
- Example: Use as a Visual Alert Timer - the light in the family room turns Blue to prompt.
- Outside Door opens at a time outside of the usual parameters – the bulbs all turn red to alert you.
- Con: Requires a Hub

Price: $39-$300

Novostella Lights

- A good competitor to Hues sold on Amazon and https://www.novostella.net
- Sells a variety of lights, indoor, strips, and out door.
- Can be controlled with Amazon Alexa
- Integrates with the Smart Life app.
- Pro does not require a hub – set up bulbs and go.

Price: $19.00+

Smart Plugs

- Smart plugs make any device smart or controllable. Limited to turning on and off.
- When it is bedtime- make someone's night light turn on or turn off.
- For those in independent living or group home scenarios – these can keep them safe by automatically turning off appliances when they leave.

Personal Tech

Wearables & Autism

- Wearable technology is a booming trend.

- For children with Autism they stand to heavily benefit from this technology, as it can help them adapt to their everyday life.

- From a research structure, wearables allow us to track and gain more information about the relationship between environmental factors and the student's reaction to them.
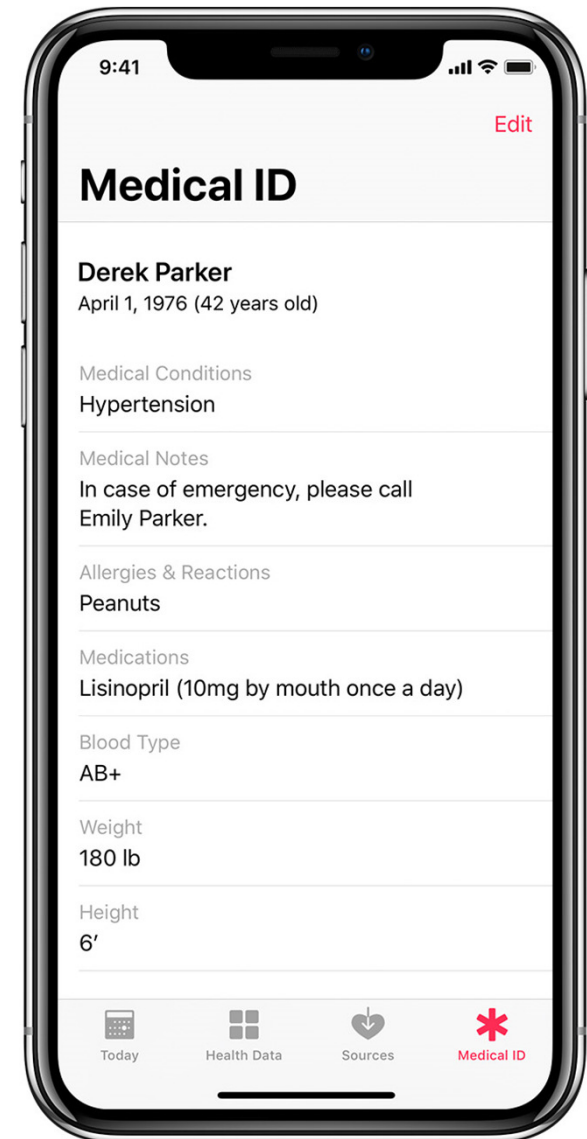
Apple Watch – Autism

- Apple Watch does require an iPhone to be paired with the device during setup.

- Once paired notifications and prompts from the iPhone can appear on the Apple Watch.

- Using features such as Messages you could prompt a student in a more socially appropriate way. Reminders can be used to help prompt a student or create a schedule.

- In Apple Watch Series 4 & 5 there is now fall detection - it will call 911 if a fall is detected. (Off by default)

- In series 4 & 5 watches they also added a built in ECG which can help detect heart issues.

- Series 5 introduced an always on display which is better for individuals on the spectrum as there is not a delay when the screen activates.

iOS Medical ID & SOS

- Recent versions of iOS have added a Medical ID card.

- This can be used in emergency situations and first responders can activate a device to find out vital medical information about a patient to help treat them.

- In the advent of an emergency and SOS has been activated you can also set an Emergency Contact. They will be alerted to the emergency and will have the ability to track where you are at.

- About Medical ID - https://support.apple.com/en-us/HT207021

- Emergency SOS –

- https://support.apple.com/en-us/HT208076

A-OK Wristband

- Hugh Murtagh from Coláiste Mhuire in Co Westmeath at the BT Young Scientist and Technology Exhibition Presented a wristband with a button on it, that when pressed can alert an instructor if they are feeling over whelmed.

- This is a prototype, it's unclear if there is funding or if they will take it to market.

- The same or similar option could be accomplished from a smart watch with messaging enabled.
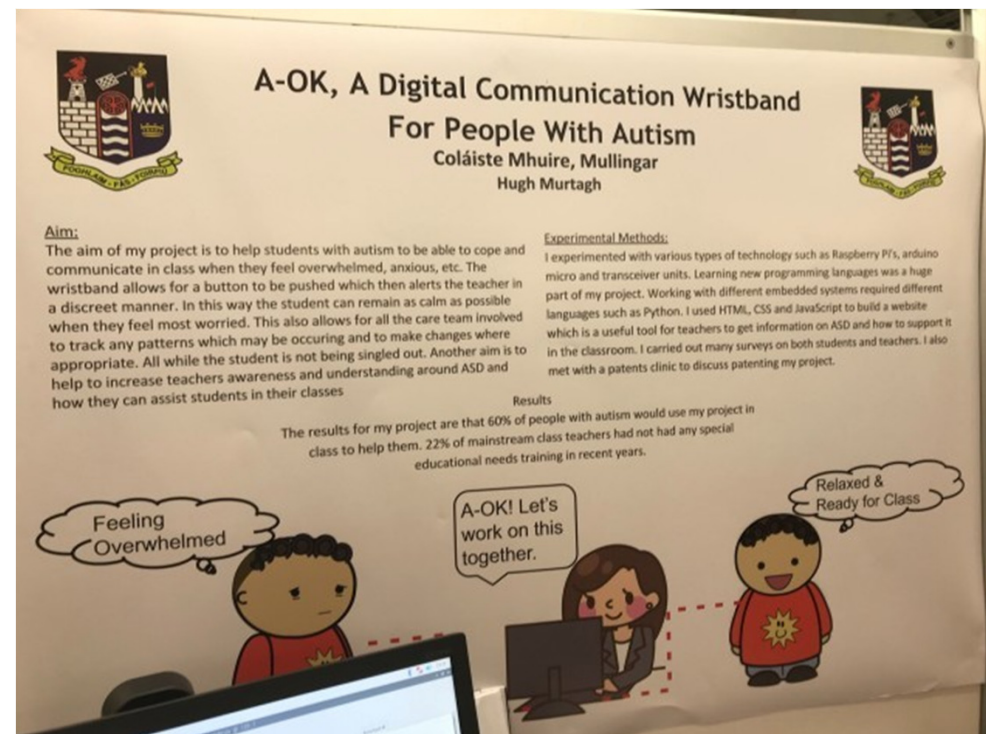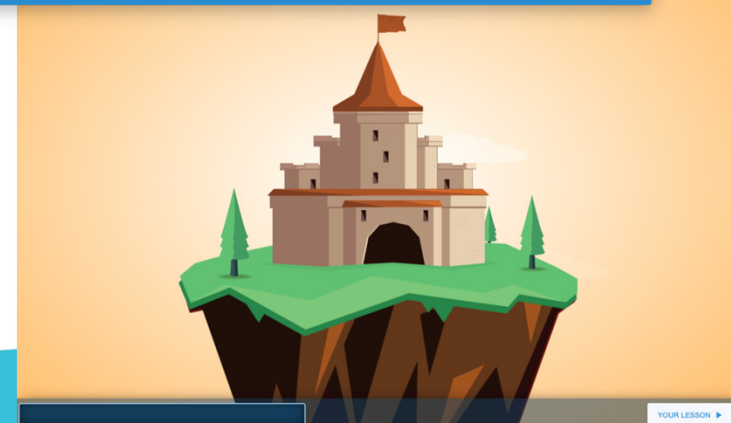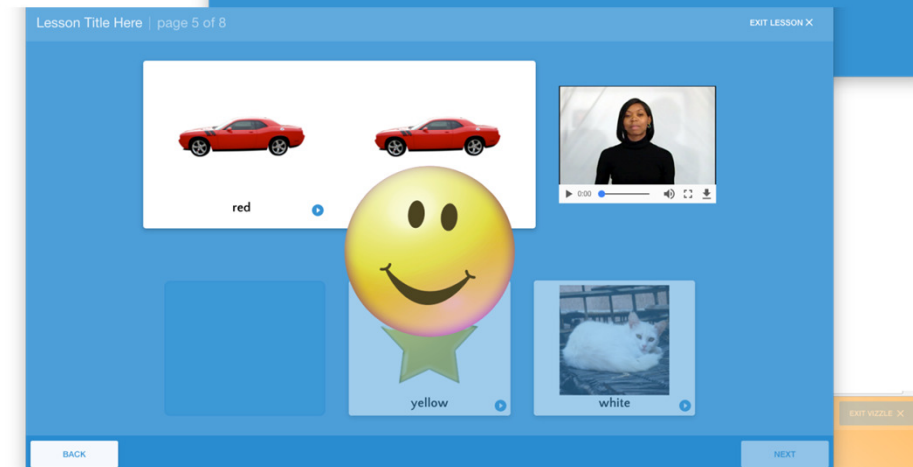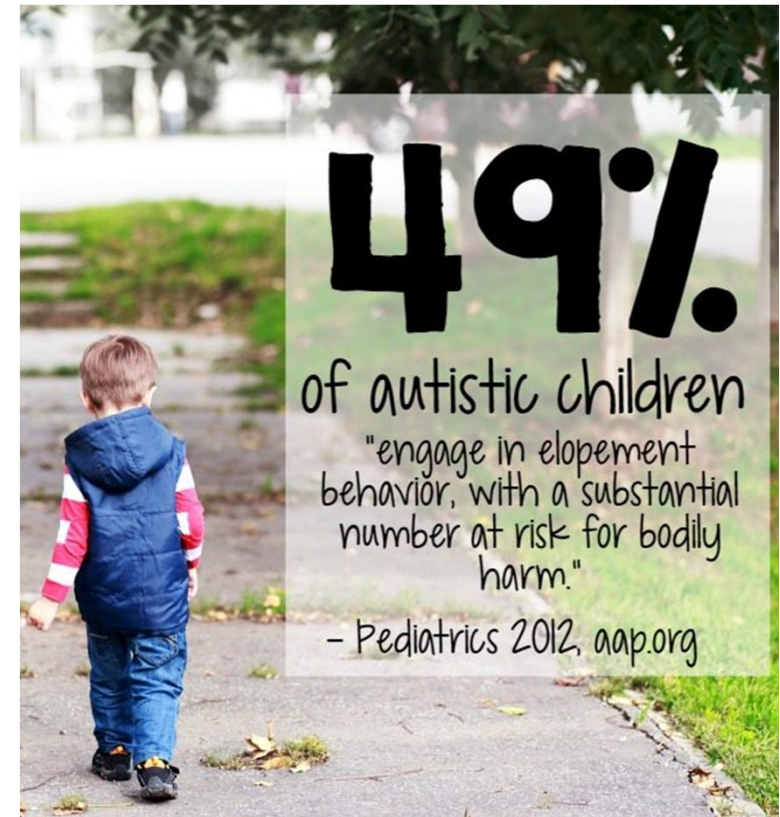
Elopement and Tracking Tech

- VizZle recently launched a new version of their award winning software.

- it is an online subscription based software for teaching children with Autism.

- VizZle has multiple tools for teaching included through stories, games, matching exercises, sequencing, sorting and the ability to create visuals and schedules.

- VizZle has a lesson library of over 13,500 activities created and shared by teachers and therapists.

- It automatically collects data on a student's progress to log against IEP goals and objectives.

- Using the VizZle Player app versions of which play on computers and many mobile devices.
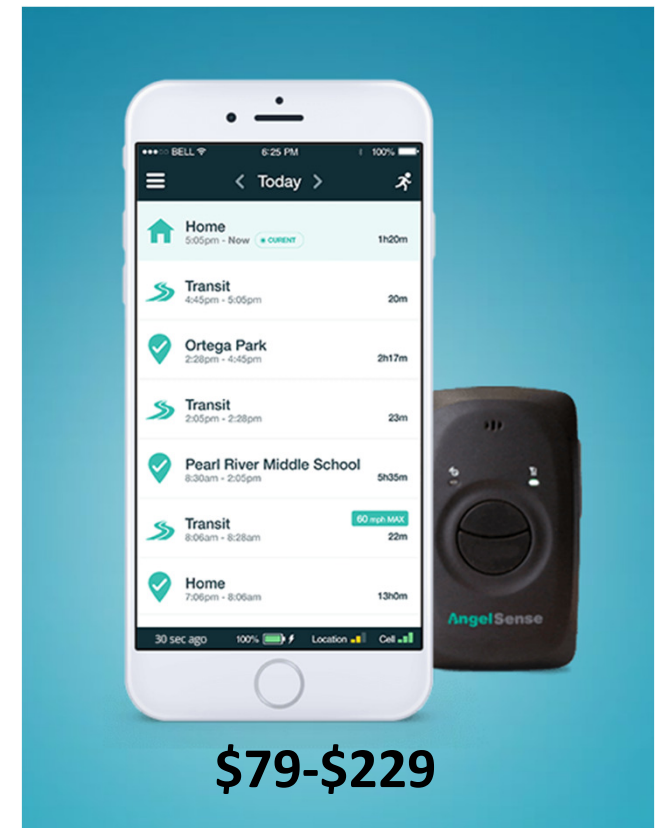
Elopement and Tracking Tech

- The ability to track someone who has a propensity to elope, can offer a great piece of mind.

- When looking at these devices look for a device that have cellular/gps access built in – this will allow you to track the device where ever there is a cellular signal.

- Devices that have Bluetooth tracking are very limited, only 50-100 feet.

49%

of autistic children

"engage in elopement behavior, with a substantial number at risk for bodily harm."
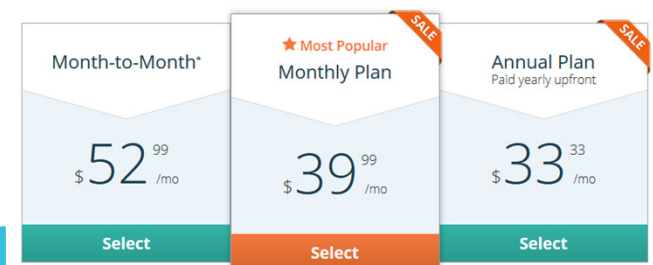
– Pediatrics 2012, aap.org

Angel Sense

- Multiple versions for different wearability - GPS sleeve (Clip on), Belt, and shirt.

- Does require a subscription – federal funding.

- **Runner mode** - Share your child's real time location with your trusted first responders, family, friends, teachers & neighbors to bring your child home safe.

- **Late Departure Warning -** Get alerted immediately if your child isn't on his bus or carpool.

- **1-Way Voice -** Hear who your child is with. Make sure your child is well and is being treated kindly.

- **2-Way Voice -** Speak to your child anytime. Requires no action on your child's part. Keep your child calm & guide them through transitions, or unexpected changes in routine. Option to add loved ones to call as well.

- **Sensory friendly design -** Unlike watches, AngelSense has multiple wearing options, & accessories are designed for sensory sensitivity. Tamper proof design ensures your child cannot remove or destroy the device.

- https://www.angelsense.com/autism-tracker/

- Funding through Insurance: https://www.angelsense.com/autism-gps-funding-options/

$79-$229

CHOOSE YOUR PLAN

Month-to-Month*	★ Most Popular Monthly Plan	Annual Plan Paid yearly upfront
$ 52 .99 /mo	$ 39 .99 /mo	$ 33 .33 /mo
Select	Select	Select

WEBSITES

App Advice

- https://appadvice.com/apps-gone-free
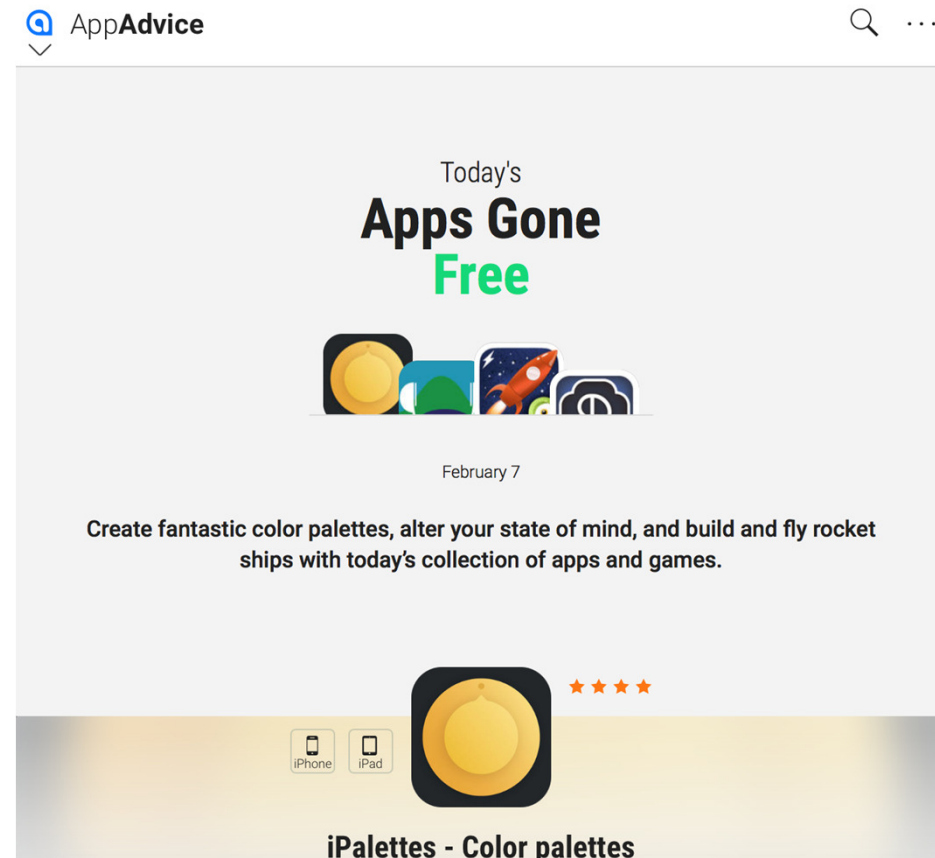- App Advice allows you to see trending apps with tops apps of the day, week, month, year.
- In their 'Apps Gone Free" section they have a daily updated website that lists all apps that have changed their status to free today.
- April is National Autism Month, and this is a great way to find apps on sale during that month.
- If you manage an MDM most sale prices as well as Free apps are honored through Apple's Volume Purchase Program.
- Example in August Proloquo went on sale, regularly $249 for 50% off. That is a cost of $124.50, under Apple's Volume purchase program when you buy 20 or more licenses your cost is 50% off or $62.25.



AppAdvice

Today's
Apps Gone Free

February 7

Create fantastic color palettes, alter your state of mind, and build and fly rocket ships with today's collection of apps and games.

★ ★ ★ ★
iPhone iPad

iPalettes - Color palettes

iOSnoops

- https://www.iosnoops.com
- iOSnoops.com is a free, open to the public website that shows daily iOS apps that have gone on sale or are free temporarily.
- You can also look up a specific app such as Proloquo2Go and see it's pricing trends.
- You can subscribe to notifications when apps go on sale or pricing changes.
- The notifications are good for 30 days after which you get an email to resubscribe.
- Top app charts to see what pos are tending.

Google Tour Creator

- New situations and events can be a learning experience for individuals with ASD, whether it is going to a new doctor or going to a baseball game.

- Familiarity with these places can help reduce anxiety and help and individual minimize distractions.

- Google Tour Creator allows you to create a guided virtual tour of a location of your choice.

- There are also precanned Tours of well-known places such as the Eiffel tower.

- https://arvr.google.com/tourcreator/

Screen Castify
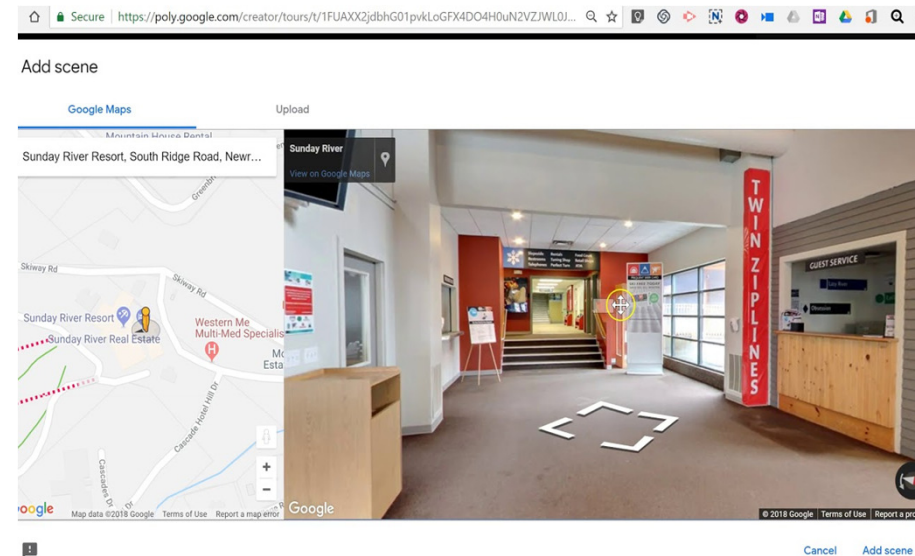
- https://www.screencastify.com
- Great for schools who are using chromebooks
- Allows you to create guided lessons for students from websites. Records you talking about the materials, and allows you to zoom in and scroll.
- Great for creating canned lessons ready to go.
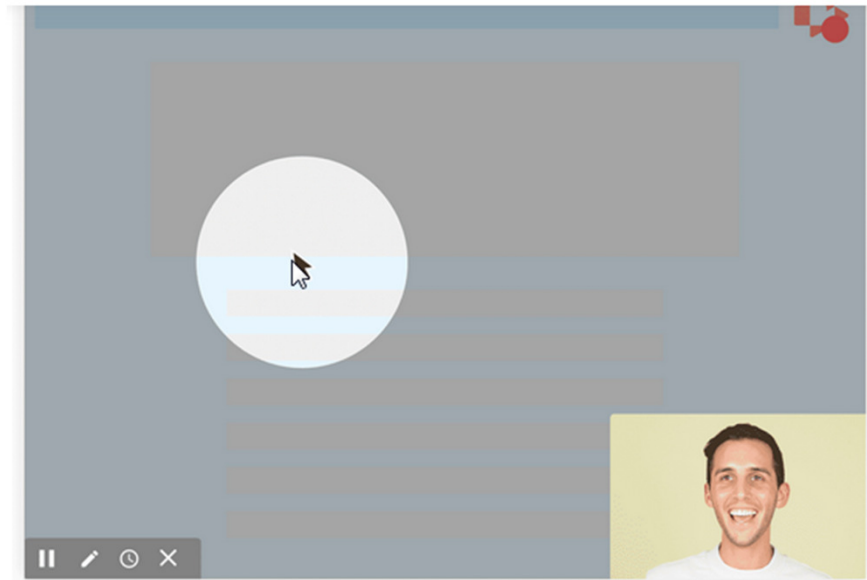
Price: Free - $49 a year

Recommended Apps

Apps Important Notes

- The original iOS app store launched in 2008 with 800 apps.

  - iOS currently has around 1.8 Mil. Apps.

  - The Google Play Store has about 2.1 Mil.

- After 12 years both app stores have developed some fragmentation of apps that are no longer available and some apps that have not been updated in years.

- When looking at Apps first look to see what version of the OS your device is running.

  - On iOS go to Settings - General – About

  - Knowing what OS version your device is running can help you search for apps.

iOS 13 and Apps

- When reviewing an app google search it, or look in the app store on the device you are looking to run the app on. Look for the section of the app called "What's New" or "Version History." From here you can see when the app was last updated.

- If you cannot find an app in the app store that you find on the web it may have been removed.

- Also Check Reviews for comments left by purchasers to see if an app does what it says it will do.

What's New   Version History

This version introduces bug fixes. Thanks for using our app!   Version 6.1.1

Version History

6.1.1   Apr 24, 2019

This version introduces bug fixes. Thanks for using our app!

6.1   Jan 7, 2019

Version 6.1 introduces compatibility for iPad Pro 11", iPad Pro 12.9" (3rd generation), iPhone XS, iPhone XS Max and iPhone XR. This version also includes the new features recently introduced in version 6:

- New volume options like a shout function   more

6.0.1   Sep 14, 2018

This update makes Proloquo2Go even more versatile and easy to use through new audio, customization and sharing options.

Audio

                                                                   more

Book Creator for iPad

By :**Red Jumper Limited**

- Allows you to create your own books including social stories.

- Very customizable with your own text and pictures. You can add video and music, and even record your voice.

- Use the pen tool to draw and annotate your book

- Choose from portrait, landscape or square book sizes

- Many ways to export: A quick tap and you're reading your book in iBooks.

- You can even publish your book online (teachers only)

- Send your book by email, AirDrop to iPhone, iPad or MacBook

- Save your book as a movie file and upload to the web

Price: $4.99

Story Creator - Easy Story Book Maker for Kids

- Made by : Innovative Mobile Apps
- Allows you to create simple social stories
- Record your own voice and select your own images.
- Will read each page as it progresses.
- Very easy to edit.
- You can share books you create with others via Download Link via email.
- Can share publicly and people can rate and review books
- Can also back up your books to iCloud.
- I use this app with My son for his social stories.

Price: Free
+ Universal

Attainment's Computers at Work

- Made by : Attainment Company

- A free version is available.

- Computer's at Work Teaches basic data entry techniques and skills.

- Includes Order Processing and Data Entry which challenge students to work independently for an hour or more.

- As skills improve, users progress from simple tasks to jobs common in today's workplace entering orders, checking inventories, and determining payment methods etc.

Price: Free - $69.00

+ Universal

Handwriting Without Tears: Wet-Dry-Try for Capitals, Numbers & Lowercase

- Made by : Handwriting Without Tears & Get Set for School
- Teaches handwriting skills
- Can practice letters in any order they choose, or follow the HWT Order, which presents the letters in the proven Handwriting Without Tears® developmental teaching order.
- Audio Cues
- Each letter has three levels of difficulty that build skills progressively.
- The two options for sensitivity allow parents and educators to adjust the writing tolerance depending on each student's needs.
- Lefty-friendly setting lets you adapt horizontal cross-strokes to make their handwriting easier.

Price: $4.99
+ Universal

Little Writer Tracing App: Trace Letters & Numbers

- By Innovative Mobile Apps
- Fun app for OT's teaching children to write by tracing over interactive ABC uppercase letters, abc lowercase letters, Numbers 1 to 100 (only 1 to 20 are turned ON by default), 20 basic shapes including lines, circles, rectangles and more, Dozens of 3 and 4 letter words to make practice more enjoyable and interesting
- Ability to add an unlimited number of your own words and pictures for maximum enjoyment and variety
- Trace all setting - when "Trace all" is turned on, users need to trace all letters on one page which makes it more like writing words
- Works great with Apple Pencil.

Price: $1.99

+Universal

EQ Mighty

- EQ Mighty was designed to educate children on "soft skills" that are often not taught in classrooms, but are now understood to be instrumental in their social development.
- Such lessons as making and keeping friends, working in a team, being safe, being respectful.
- Helpful tools – such as vide models, work sheets, and coloring pages.

Price: Free

In App purchases

Happy Kids Timer - Chores

- App for helping kids complete their morning and evening routines.
- Customizable your routines
- Uses positive reinforcement through awards and certificates that are printable.

Price: Free

+ Universal

In App purchases

Explore Daniel Tiger's Neighborhood

- A scene cue application to facilitate communication.
- 5 areas located in Daniel Tiger's Neighborhood. The Grocery Store, Music Shop, Bakery, Doctor's Office, & Enchanted Garden
- Areas to teach about using the potty.
- Able to explore those areas with interactive components and mini games such as the ringing people out at the grocery store.
- You can place characters in any of the exploration areas as well.

PBS KIDS

Price: $2.99
iPad & iPhone

The Zones of Regulation

- Made by : Selosoft, Inc.
- "The Zones of Regulation (www.zonesofregulation.com) is a framework for thinking as well as a curriculum geared toward helping students gain skills in consciously regulating their behaviors, including the management of their emotions and level of alertness. This, in turn, leads to increased self-control and problem solving abilities. "
- Helps Teach Student's a color coding system of feelings and behaviors, and then teaches them tools to regulate themselves in those scenarios.

Price: $5.99
+ Universal

Children's Countdown Timer

- Made by : Fehners Software LLP
- This is Monarch's go to Timer app and it is on all of our iPads.
- Designed by a parent for their 2 year old.
- Can use a color timer that changes from green to amber red.
- You can choose any image to reveal, very customizable.
- Fun animations when timer completes.
- Can turn off sounds and a child mode to hide the buttons.
- Background image changes to match the time of day.

Price: Free + Universal

Voice-O-Meter

- Made by : Use Your Noodle, LLC
- App to assist those who speak to quietly or too loudly, helps regulate tone.
- You can set the decibel of what is too quiet or too loud.
- Warning Chime will be heard when the threshold is met.
- Chime does not go off when too low.
- Data can be tracked in the app.

Price: $.99

+ Universal

Endless Reader

- By Originator Inc.
- Teaches sight words with the assistance of fun little monsters.
- Features:
- 6 words free to try with additional word packs available for purchase.
- Delightful animations reinforce sight recognition of words in a fun and interactive way.
- Word puzzles reinforce spelling using lower-case letters and the sentence puzzles teach definition and usage (in addition to sight recognition).
- Endless Reader was designed with your children in mind. There are no high scores, failures, limits or stress. Your children can interact with the app at their own pace.

Price: Free - in-App purchases +Universal

Endless Numbers

- By Originator Inc.
- Features:
- Helps facilitate early number recognition.
- 5 numbers are free
- Animations reinforce number recognition, quantity, and counting.
- Interactive number puzzles reinforce basic numeracy skills.
- No timers or limits

Price: Free - in-App purchases +Universal

YouTube Kids

- YouTube Kids allows an individual access to YouTube but to curated videos.
- The app allows you to set the age of the individual and only show videos for that specific age range.
- The or Voice to search feature.
- Parental section Controls :
  - set a timer to limit time use of app.
  - Turn off App sound affects and music, great for individuals with Autism.
  - Play HD on Wi-Fi only so it doesn't consume your data.
  - View history.
  - Setting YouTube account and using YouTube Red can download videos for offline viewing

Price: Free + Universal

SnapType

- Made by : SnapType
- With SnapType, students can take a picture of their worksheets, or import worksheets from anywhere on their device. They can then use their iOS device keyboard to add text to these documents and print, email, or share their creations.
- Can import PDFs
- Can save multiple documents
- Pro version with expanded functionality

Price: Free

+ Universal

Life360: Find Family & Friends

- Software to help family members know each other's locations at all times.

- Receive realtime alerts when friends or family arrive or leave home, work, and school

- Share photos and text messages with our secure, private chat

- See past location history for your Circle

- See information after each drive to improve driving safety

- Protect your family while they're driving with our Crash Detection service

Price: Free - in-App purchases +Universal

Amazon Alexa

- Alexa on your phone
- This app allows you to control various Amazon Echo devices and manage your blueprints
- It also has the Alexa voice assistant built into it if you want to give it a try and see how it works.

Price: Free

Monarch Center for Autism
A Division of Bellefaire JCB

Services

- Preschool & Day School

- Transitional Education Program

- Boarding Academy

- Adult Autism Program & Residence

- Extended School Year

- Summer Social Language Program

- Family Training, Support & Social Activities

- On-Site Consultation & Therapy

- Online Resource Center

- **Web**: www.monarchcenterforautism.org

- **Telephone**: 216.320.8945 or 1-800-879-2522

- **Address**: 22001 Fairmount Boulevard, Shaker Heights, Ohio 44118

- **Facebook**:

- www.facebook.com/monarchcenterforautism

- **Twitter**: www.twitter.com/monarchohio

Questions ?