Assistive Technology Across The Lifespan: Facts, Features & Fit

By, Erin Ross, ATP, LBS1

https://bit.ly/ATLifespan

Erin Ross

1. Knew I wanted to help people with special needs when I was in kindergarten!
2. 11 years in the field
3. Special education teacher for fourth through seventh grade students
4. Assistive Technology Facilitator for eight years

Erin Ross

Degrees & Certifications

1. Bachelors in Special Education from the University of Illinois Urbana Champaign
2. Graduate Certificate in Assistive Technology from the University of Illinois at Chicago
3. RESNA ATP

A Little More About Me

1. Married 2 years & mom of English Cream Golden named Casey
2. Avid tennis player
3. Love to cook

Erin Ross

Glenview School District 34

1. 4,869 students
2. Preschool-Eighth Grade
3. 1:1 iPads K-8
4. Building capacity for 6 years in this role (8 years total)

The A.T. Tutor LLC

1. Founder & Assistive Technology Facilitator
2. Provide assistive technology, literacy & math tutoring
3. Expanding to contract with school districts
4. Training to organizations
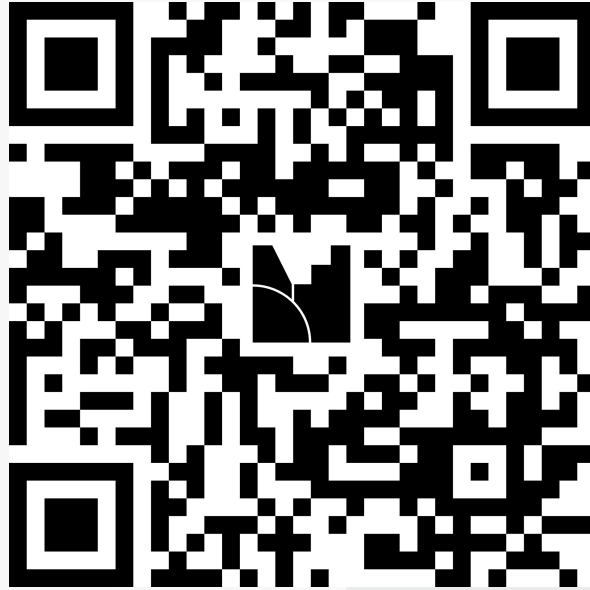5. Speaking engagements

***Let's connect visit my Linktree

Let's Get to Know YOU!

https://www.menti.com/al5kpmcypu4o

TABLE OF CONTENTS

01

What is Assistive Technology?

Think of assistive technology as a bridge

Assistive Technology is...

The Individuals with Disabilities Education Improvement Act (IDEA) of 2004, provides a legal definition of AT.

The definition at 34 C.F.R. § 300.5 reads as follows:

Assistive technology device means 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 the functional capabilities of a child with a disability.... (Authority: 20 U.S.C. 1401(1))

AT Can Be...

Low Tech

Mid Tech

High Tech

Low Tech Can Be...

My Schedule

Wake at 7:00

School

Homework

Music Lessons

TV

Bedtime at 8:00
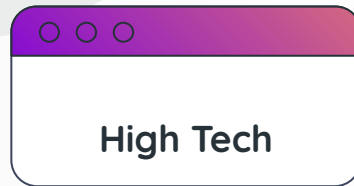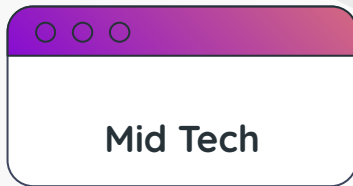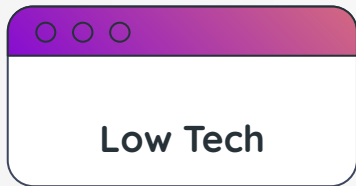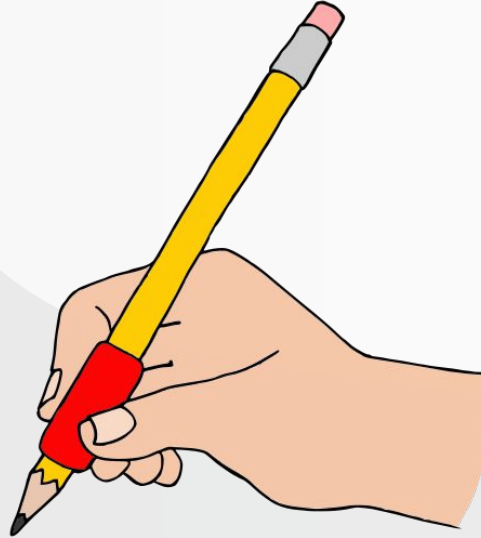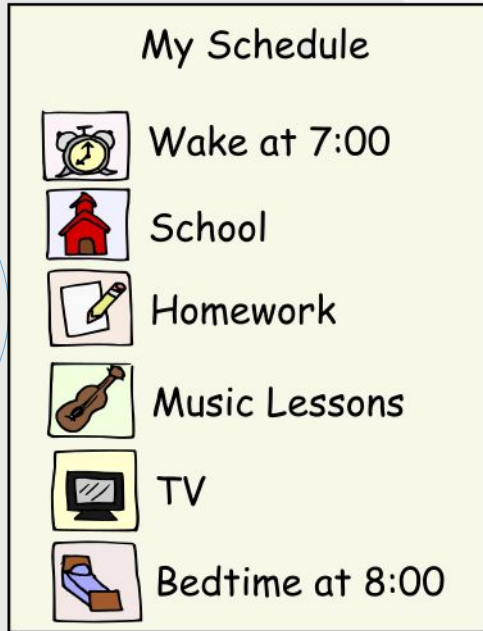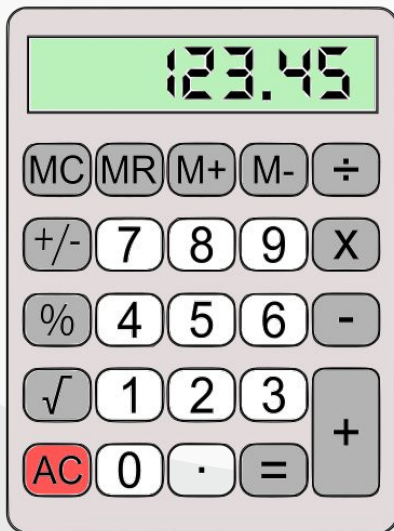
Mid Tech Can Be...

High Tech Can Be...

AT is NOT...

In IDEA 2004, Congress imposed a limitation on the definition of AT. The definition at 34 C.F.R. § 300.5 includes the following statement:

The term [assistive technology] does not include a medical device that is surgically implanted, or the replacement of such device. (Authority: 20 U.S.C. 1401(1))

From the Responses on the QIAT Listserv, <u>AT is</u>:

From the Responses on the QIAT Listserv, AT is NOT:

1. Crutch, cheating
2. Always the answer
3. Always high - tech.
4. One Size Fits All
5. An immediate fix
6. A cure
7. A specific device/app/piece of equipment
8. An admission of disability but a sign that someone is willing to use all of their strengths to do their very best despite a limitation.
9. Think for a student
10. Make connections between ideas for a student
11. Analyze information for a student
12. Complete an assignment for a student

What are AT Services?

IDEA 2004 provides a definition of AT services at 34 C.F.R. § 300.6. Specifically, it states:

Assistive technology service means any service that directly assists a child with a disability in the selection, acquisition, and use of an assistive technology device. (d) Coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;

The term includes—

(a) The evaluation of the needs of a child with a disability, including a functional evaluation of the child in the child's customary environment;

(b) Purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by children with disabilities;

(c) Selecting, designing, fitting, customizing, adapting, applying, retaining, repairing, or replacing assistive technology devices;

The terms continued:

(e) Training or technical assistance for a child with a disability or, if appropriate, that child's family; and

(f) Training or technical assistance for professionals (including individuals providing education or rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of that child. (Authority: 20 U.S.C. 1401(2))

AT service delivery involves more than simply providing AT; it is a process by which AT is considered, selected, provided, supported, and periodically evaluated to determine its effectiveness for a particular student.

ADA

Title I: Employment

Title I prohibits discrimination on the basis of disability in employment, including recruitment, hiring, pay, and other related aspects. Employers with 15 or more employees, and state and local governments, are covered by ADA Title I.

Under Title I, employers are also required to provide reasonable accommodations, which the ADA stipulates may include:

A. making existing facilities used by employees readily accessible to and usable by individuals with disabilities, and
B. job restructuring, part-time or modified work schedules, reassignment to a vacant position, **acquisition or modification of equipment or devices,** appropriate adjustment or modifications of examinations, training materials or policies, the provision of qualified readers or interpreters, and other similar accommodations for individuals with disabilities.

AT Categories

1. Aids for Daily Living (ADL)
2. Communication
3. Computer Access
4. Controls/Switches
5. Environmental Modifications
6. Hearing
7. Jobs/workplace
8. Mathematics
9. Organization/Executive Functioning
10. Positioning, Seating, Mobility
11. Reading
12. Recreation/Leisure
13. Vision

THAT'S A MYTH.

02

THAT'S A FACT!
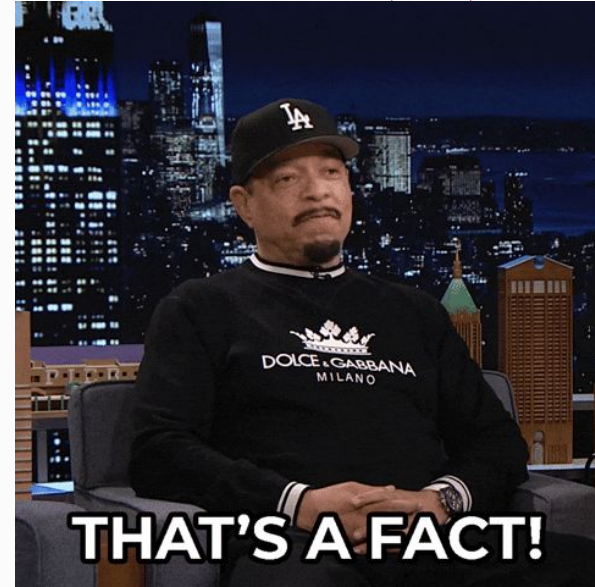
Debunk Myths

Resources!

Myths & Facts Surrounding Assistive Technology by the Office of Special Education Programs (OSEP)

LINKED HERE!

Office of Special Education Programs (OSEP) Guidance from the U.S. Department One Page Summary

Purpose

This document clarifies the Individuals with Disabilities Education Act's (IDEA) requirements for assistive technology (AT) devices and services for children with disabilities. It aims to dispel common misconceptions and provide examples of how AT can be used.

Target Audience

- Special educators
- General educators
- Related service providers
- Administrators

Key Points

- LEAs are required to fund AT.
- AT evaluations are not mandatory.
- AT MUST be documented in IEP.

Definitions

Assistive Technology Device

An AT device is any item, equipment, or product system used to increase, maintain, or improve the functional capabilities of children with disabilities.

Assistive Technology Service

An AT service assists in the selection, acquisition, or use of an AT device. This includes evaluation, purchasing, customizing, and training related to the device.

Myth	Fact
Using AT devices and services will not improve child outcomes.	Research demonstrates that the use of AT devices and services improves child outcomes in all settings.
The use of AT devices lowers a child's motivation to complete assignments.	Research shows that AT increases a child's motivation to complete assignments.
AT should only be considered at some IEP meetings.	AT must be considered whenever an IEP is developed, reviewed, or revised.
If a child doesn't want to use AT, a teacher doesn't need to follow up to model and encourage the child to use the AT.	If a child does not want to use an AT device, it is critical that the IEP Team works with the child to understand and address the root cause of the child's refusal.

The A.T. Tutor

What Does The Research Say About AAC?
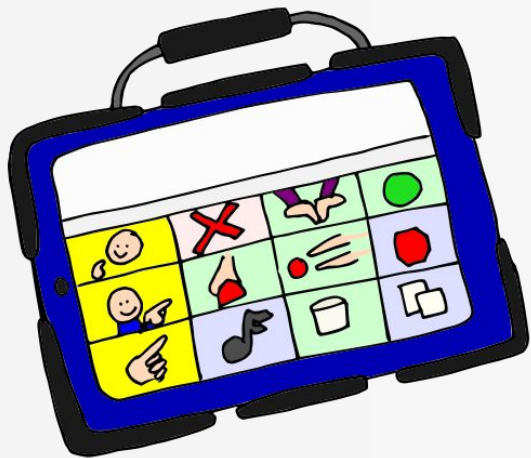
Check Out These Links:

1. AAC Myths
2. Myth vs. Fact

What surprised YOU or What did YOU take away?

03

Access,
Task Demand,
Feature
Matching

Task/ Demand Feature Match

Let's Define: Task Demand

How would anyone do this task or activity in the context it is being assigned or asked?

Think about a task demand as a way of completing an activity or task without:

◎ Accommodations (including assistive technology)
◎ Modifications
◎ Differentiation

The "typical" way to complete the task or activity.

Cochrane, D. (2015). *Week 4 Part 1: Problem analysis.*
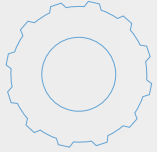
Let's Define Feature Matching
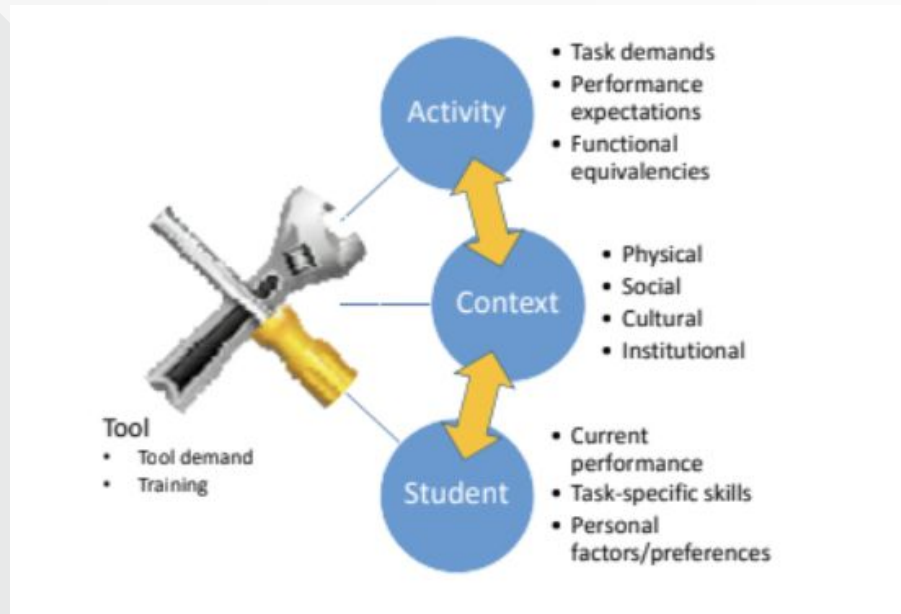
Cochrane, D. (2015). *Week 6 Part 2: Feature Matching.*

Georgia Project for Assistive Technology
Assistive Technology Consideration Resource Guide

This is a companion document to the GPAT Assistive Technology Consideration Process Guide to assist IEP teams by providing examples of each area within the AT Consideration Process Guide. Each column contains general examples for each area but is not considered all inclusive. Remember that others who are not familiar with the student may refer to this document to provide supports.

Assistive Technology Services – applies to all instructional and/or access areas.	

- Activities that help teams select, acquire and/or provide technical assistance in the use of assistive technology devices
  - Assistive Technology Evaluation of the student
  - Acquisition of AT - purchasing or leasing
  - Selecting, designing, fitting, customizing, adapting, applying, maintaining, replacing, and/or repairing AT devices
  - Coordinating and using other therapies, interventions or services with AT devices
  - Training or technical assistance for student or student's family
  - Training or technical assistance for professionals, employees or others who are involved with the student

Useful Notes for Using this Resource Guide

**Column A**: Relates to basic instructional tasks which support the Common Core Georgia Performance Standards (CCGPS) and/or other tasks

Column B: Standard classroom materials available for student use (listed in alphabetical order)

Column C: Accommodations, modifications and/or strategies (listed in alphabetical order)

Column D: Potential Assistive Technology solutions (corresponds to Columns D and E on the GPAT Consideration Process Guide)

A. Area and Sample Instructional Tasks	B. Standard Classroom Materials	C. Accommodations/Modifications/ Strategies	D. Assistive Technology Solutions

Writing/Written Composition:
• Draw/illustrate
• Write name
• Copy information
• Write letters/words/numbers
• Align numbers and text
• Write from dictation
• Writes legibly
• Complete written worksheets and/or tests
• Outline/organize thoughts
• Write sentences, paragraphs or narratives
• Take notes
• Graph
• Use appropriate spelling,
	• Computer/tablet/word processor
	• Crayon/Marker
	• Dictionary, grammar and/or spell checker
	• Document camera
	• Interactive whiteboard
	• Letter and number strip
	• Paper/writing surface
	• Pen
	• Pencil
		• Change format or substitute alternatives for written assignments
		• Decrease assignment length
		• Decrease number of responses
		• Increase print size
		• Increase time
		• Optimal student seating
		  ○ appropriate lighting (not facing glare or in shadows)
		  ○ away from extraneous noises
		  ○ close proximity to the teacher (distance)
		  ○ individualized visual
			• Pencil grip or other alternative writing aids
			• Adapted paper
			  ○ bold line
			  ○ raised line
			  ○ different spacing
			  ○ colored
			  ○ graph
			• Positioning Aids (slant board/clip board)
			• Non-slip material
			• Personal dry erase board
			• Slate and stylus
			• Timers
			• Device, software or app
			  ○ spell and grammar checker
			  ○ outlining/ graphic organizers

Link to GPAT Resource Guide

Feature Matching Resources

School Setting

AT Process in The Schools

Any Tool

Device Feature Match by TATN
SETT Framework

Determining Access Method
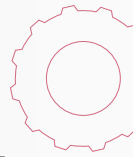
Access Navigator Beta

AAC
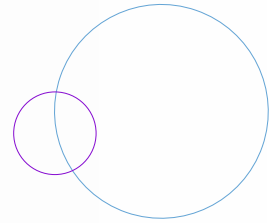
- Scope's Worksheet,
- AACandAutism.com
- AAC/App Features to Consider Visual
- OMazing Kids
- ECHO Voices links to the last 5 years of presentations
- Link to the Master spreadsheet ECHO VOICES features of AAC systems
- Link to a Feature Match Matrix for Non-Robust Portable AAC Systems
- Link to a Blank ECHO VOICES AAC spreadsheet for your own use

CALL Scotland

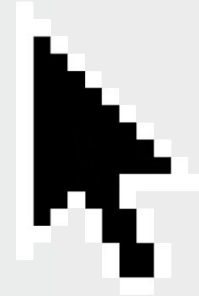## Left panel (CALL Scotland website)

CALL SCOTLAND | PASSPORTS | SYMBOLS FOR ALL | AAC SCOTLAND | WORDTALK | BOOKS FOR ALL

CALLScotland

Home | About | Information | Learning | Downloads | Loan Bank | Shop | Contact | Blog

Quick links or Search CALL Scotland

Home > Information

Information

Additional Support Needs

Autism Spectrum Conditions
What is Autism Spectrum Condition and how can technology help.

Communication Support Needs
Information on Communication Support Needs, AAC and Scottish legislation.

Dyslexia
What can help with writing, reading and numeracy.

Physical Support Needs
Assistive Technology has opened up a world of opportunities for people with physical support needs.

Severe & Complex Support Needs
Technology has the potential to reduce or eliminate barriers to learning.

Visual Impairment
Some ways technology can help to support people with a visual impairment.

Technology

Alternative Access
Access Technologies provide an alternative way to control a computer, tablet or smartphone.

Books for All
Curriculum books in accessible formats - for students who have difficulty reading ordinary printed books.

Communication Aids
Communication aids help people who have little or no speech to communicate with others.

Computer Accessibility
Are you meeting legal requirements for computer accessibility?

Digital Assessments for Students with ASN
Designed for students with disabilities or additional support needs.

Eye Gaze
Replaces the standard mouse so you can use your eyes to control a computer.

iPads, Androids & Chromebooks
Using this technology to support learners with Additional Support Needs.

Mounts & Stands
A detailed look at the different options.

Smart Wheelchair
The control of the chair is a partnership between the pilot and the chair itself.

Speech Recognition
Speak to your computer, tablet or smartphone to control it, give commands and dictate text.

Text-to-Speech
Reads text from a document or web page to you using a computer voice.

The Scottish Voice
Free Scottish accent and Scottish Gaelic computer voices.

WordTalk
A free 'text-to-speech' plugin for Microsoft Word.

Middle panel

iPad Apps for Learners with Dyslexia/ Reading and Writing Difficulties

The 'Wheel of Apps' is not comprehensive, but attempts to identify relevant, useful apps and to categorise them according to difficulties faced by people with dyslexia.

Note that some apps address a range of difficulties. To save space, we have not placed individual apps into multiple categories, but have listed them under a single category that is particularly relevant to the app.

Links on the electronic version of the poster are 'clickable' and will take you to the Apple App Store.

☐ Free apps (no in-app purchases offered)
**Some apps are free on the App Store but there are in-app purchases for full functionality.

The iPad has a range of built-in tools to support reading and writing. To find out more view our range of short video guides:
https://bit.ly/iPad-Video-Short-Guides

We also have a free online module on Using the iPad to Support Literacy:
www.callscotland.org.uk/training/learning-modules/

Try our free online Technology to Support Dyslexia Masterclass course:
https://bit.ly/callscotland.org.uk/training/technology-to-support-dyslexia-in-education/

Version 3, May 2025 CALL Scotland, The University of Edinburgh.
CALL Scotland is part funded by the Scottish Government.
An electronic version of this chart can be downloaded from:
www.callscotland.org.uk/downloads/posters-and-leaflets

THE UNIVERSITY of EDINBURGH

CALLScotland

Right panel

Chromebook Accessibility and Learning Tools

If you have an additional support need such as dyslexia, visual impairment, or a physical disability, you can make your Chromebook easier to use by turning on the accessibility features that work best for your needs.

Finding and turning on accessibility features
At the bottom right of the screen click or tap the 'time' icon or press 'Alt + Shift + s' on the keyboard. Select the Accessibility icon and choose the features you want to use.

You can't see the Accessibility icon choose Settings, Advanced Settings and Always show accessibility options in the system menu.

Hear text read aloud - Select and Speak
Press and hold the Search key, then select content to be read aloud, highlight the text and press the Search key + s. To pause or stop the speech press the Ctrl or the Search key. (On a touchscreen, tap and select to speak.)

Did the Romans conquer Scotland?
Part of Learn & revise - Roman Britain
By the end of the first century AD, Rome had most of southern Britain under its control. However, it was a different story in Scotland - this was a much wilder place. It was still controlled by fierce warrior tribes, who refused to bow to the Roman Empire.

Words are highlighted as they are spoken. In 'Accessibility' and 'Manage Accessibility Features' you can change the highlight colour or turn it off.

You can change the language and voice (no Scottish voices).

Mouse options
To increase the size of the mouse cursor go to:
Accessibility > Additional Settings > Large mouse cursor.
Use 'Highlight the mouse cursor' (and the text caret) to help with tracking.
Set 'Automatic clicks' to automatically click icons and items on the screen.

Dictation - dictate text instead of typing
Tap/click where you want to type, select the 'Microphone' icon or press the Search key + d to activate Dictation.
You can use Dictation to:
- ask questions and do searches in Google Chrome,
- dictate text in Google Docs, emails and other text fields.
If you don't have a Chromebook you can use Voice Typing in Google Docs via your web browser:
- go to Tools and choose Voice Typing.
For best results use a good quality microphone!

ChromeVox: the built-in screen reader
The ChromeVox Screen Reader (spoken feedback) reads aloud everything on the screen including:
- The Chrome browser including Google Docs,
- Menu items and navigation buttons,
- Form fields and text boxes...and more!

"Play button, press Search and Space to activate"

Press Ctrl + Alt + Z to start and stop ChromeVox.

ChromeVox is compatible with a range of compatible USB Braille Displays.

Magnify or zoom your Chromebook screen
There are 4 different ways to magnify/zoom to increase content on a Chromebook:
1. Full-screen magnification - click or tap the Full-screen magnifier in Accessibility.
2. Magnify the browser content; Press 'Ctrl and +' to zoom in, 'Ctrl and -' to zoom out. 'Ctrl and 0' keys to reset.
3. Magnify everything on the screen. Press 'Ctrl, Shift and +'. 'Ctrl, Shift and -' to decrease.
4. Docked Magnifier (top section of screen is magnified) - click or tap 'Dock Magnifier' in Accessibility.

By the end of the first century... control. However, it was a different... place. It was still controlled by... Roman Empire.

Scotland had valuable natural... could also get rich by charging...

There is also an option to change the colour scheme to High Contrast Mode - Click or tap Accessibility > High Contrast Mode

Download this poster in PDF format:
www.callscotland.org.uk/downloads/posters-and-leaflets

Find out more...
For more information on Chromebook Accessibility, e.g., keyboard shortcuts, the on-screen keyboard, audio and captions visit:
bit.ly/chromebook-accessibility
To extend Chromebook Accessibility download the "ChromeBook Apps and Extensions for Learners with Dyslexia" infograph from CALL Scotland:
bit.ly/Chromebook-Apps-Extensions

Version 2, January 2019 CALL Scotland, The University of Edinburgh.
CALL Scotland is part funded by Scottish Government.
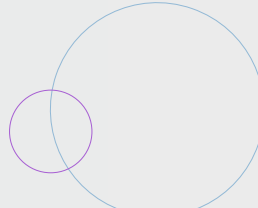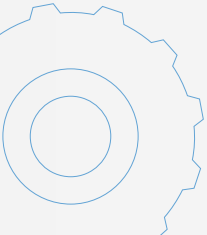
CALL Scotland

Access Method(s)

Direct Selection:

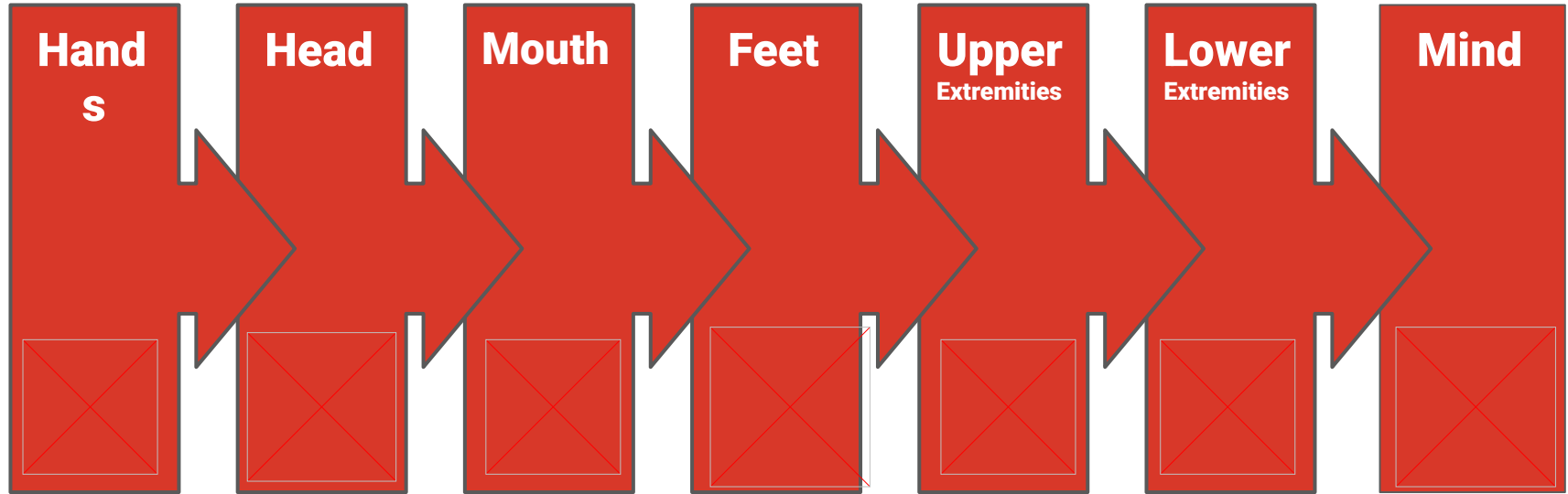- Touching
- Pointing
- Mouse or joystick
- Eye gaze
- Head tracking

Indirect Selection:
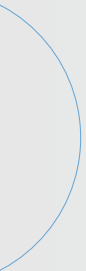
- Switch access

SWITCH SITE HIERARCHY

Hands → Head → Mouth → Feet → Upper Extremities → Lower Extremities → Mind

By, Chris Marotta

Let's Play: Match The Features

How to Play: Match the Features!

1. Choose the profile representing the client(s) you work with

2. Review the list of assistive technology features.

3. Choose 2–3 features that best fit your user's needs, strengths, and environments.

4. Be ready to share:

   - Why those features?

   - How they support access, participation, or independence?

   - Which feature might *not* be a good fit—and why?

User Profile Across The Lifespan

- 👶 Liam (Age 4): Preschooler with limited speech clarity, enjoys pretend play. Goal: participate during play and group routines.

- 👧 Ava (Age 9): Student with dyslexia and ADHD. Goal: access grade-level texts and express ideas independently.

- 🧑‍🦽 Diego (Age 16): High schooler with cerebral palsy using a wheelchair. Goal: communicate and complete assignments independently.

- 💁 Samantha (Age 30): Professional with visual impairment. Goal: efficient computer access at work.

- 👴 Mr. Thomas (Age 72): Retired teacher with tremor. Goal: read and stay connected online.

Assistive Technology Features to Consider

- Direct selection (touch, eye gaze)
- Switch scanning
- Word prediction
- Voice output
- Adjustable mounting
- Magnification or screen reader
- Adjustable font and color contrast
- Speech-to-text
- Environmental controls
- Symbol vs text-based layouts
- Mobile compatibility
- Data tracking and logging

Reflect & Discuss

- What patterns did you notice in your feature selections?
- How did the environment shape your choices?
- Which myths did this activity challenge?
  - 'There's one perfect device.'
  - 'Kids outgrow AT.'
  - 'AT is only for school.'
- How does feature matching look different across the lifespan?

04

AT at Home, School & Community Settings

Many of our AT supports use embedded AI

Our AT Tools have been significantly improved with the use of AI working in the background

Speech recognition   word prediction

Grammar/spelling support   Voice assistants

-Kelly Key, AT Facilitator Barrington School District 220

Embedded AI

Artificial intelligence that is integrated directly into hardware or software systems to enable real-time processing and decision-making without relying on cloud computing.

Generative AI

Artificial intelligence systems that can create new content, such as text, images, music, code, and even video, based on patterns learned from existing data.

-Kelly Key, AT Facilitator Barrington School District 220

How are YOU using AI?

Raise your hand if you agree AT is AI?

Smart Homes

Smart Homes Made Simple

Your Guide to Smart Home Technology

IATP
ILLINOIS ASSISTIVE TECHNOLOGY PROGRAM

Illinois Assistive Technology Program

Smart Home Technology

The Smart Home Demonstration Center features home automation options in fully functioning rooms including a kitchen, living space, bedroom, bathroom, and laundry room. Visit our Center to learn how you can monitor and control your home environment with features such as:

- Security
- Lighting
- Appliances
- Climate Control
- Entertainment Systems
- And more!

The Smart Home Program offers in-home evaluations and demonstrations of a variety of devices that promote safety and independence in the home.

Visits to the Center are available by appointment. For those who cannot travel to Springfield, virtual meetings and/or tours can be scheduled.

The program is focused on serving those who receive services from one of the major bureaus of the Illinois Division of Rehabilitation Services. However, if you think smart home technology can help you, please contact us for more information.

The IATP Smart Home Team is available for presentations to create greater awareness of the many uses and benefits of Smart Home Technology.

CONTACT US FOR MORE INFORMATION

THANKS!

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The A.T. Tutor
ASSISTIVE TECHNOLOGY

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