Idaho Assistive Technology Project

The Idaho Assistive Technology Project is a federally funded program administered by the Center on Disabilities and Human Development at the University of Idaho.
Presentation Goals

• IDEA and Assistive Technology (AT)
• AT for Reading
• AT for Written Language
• AT for Mathematics
• Tablets and Assistive Apps
• How to Access Assistive Technology Services
Individuals with Disabilities Education Act and Assistive Technology
Assistive Technology Device

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. The term does not include a medical device that is surgically implanted, or the replacement of such device.

IDEA 2004 § 300.5
Assistive Technology Service

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

IDEA § 300.6
So what about glasses and hearing aids?

As a general matter, public agencies are not responsible for providing personal devices, such as eyeglasses or hearing aids that a child with a disability requires, regardless of whether the child is attending school.

Federal Register 46581
IEP and “considering” AT

(a) *Development of IEP*—(1) *General.*
In developing each child’s IEP, the IEP Team must consider—

(2) *Consideration of special factors.*
The IEP Team must—

(v) Consider whether the child needs assistive technology devices and services.

§ 300.324 Development, review, and revision of IEP.
IEP and “considering” AT

• Careful and deliberate thought…
IEP and “considering” AT
Assistive Technology for Reading
What if one of your students is having difficulty reading?

• The student spends a great deal of time in decoding individual words
• The student is having difficulty reading grade level textbooks
• The student is a very slow reader and takes much, much longer to read an assignment than same level peers
Easy low-tech accommodations

• Cut-out window

• Color Filters

• Highlighting
Visual Supports for Reading

• Pictures paired with text

Smokey’s Website

Your visit to this website will help Smokey spread his word. Learn how to make your home, neighborhood, community, and live fire safe. Each section of Smokey’s website is packed with information and useful links for all generations...kids, parents, and grandparents.
Single Word Support

"Reading comprehension is much improved for students when they use this incredible tool."

Dr. Denise P. Gibbs
Director of the Scottish Rite Foundation of Alabama Learning Centers

Merriam-Webster Speaking Dictionary

Franklin’s Children’s Talking Dictionary and Spell Corrector
Auditory and Visual Supports for Reading

- Books on tape/CD/mp3 –
  - Public domain audio books for mp3, iPod, DVD
  - Narrator read
Auditory and Visual Supports for Reading – Text-to-Speech

• Talking word processors – as you type the letters, words, or sentences are read aloud

As I type the computer speaks to me.
Text-to-Speech

- Ebooks/text readers – read aloud text and highlight as the word is spoken aloud
Text-to-Speech

- Scan and read systems

Scan in your own books and have them read aloud by the computer
Reduce the Volume of Reading Demands

• *Spark Notes*
  – www.sparknotes.com

• *Cliffs Notes*
  – www.cliffsnotes.com
Assistive Technology for Written Language
What if one of your students is having difficulty writing?

The physical process - handwriting

- The student’s handwriting is very difficult to read

- The student spends more time erasing than writing

- The student cannot copy text from the board or projector quickly enough to keep up with the lesson
What if one of your students is having difficulty writing?

The mental process - Composition

• The student has much more difficulty organizing their ideas on paper than same level peers
• The student has great difficulty with spelling
• The student uses a much lower written vocabulary than same level peers
Aids for Handwriting

• Different widths of lined paper
• Boxes for magnetic letters or words
• Skipping lines (color in skipped line)
• Dot where to begin
• Spacers – spaceman, stickers, stamps, dashes, post-it strips, graph paper, small candies
• Reduce sizing – paper, sentence strips, post-it, labels, boxes
• Typing – portable word processor or computer
Adapt the Writing Surface

- Stabilize with a clipboard
- Provide an angle with a slant board
- Give tactual boundaries with:
  - Raised line paper
  - Puffy painted lines
  - Waxed lines
  - Wikki sticks
Adapt the Writing Tool

• Various styles of writing implement
• Pen and pencil grips

Writing Bird

Handiwriter

Pen and Pencil Grips
Portable Word Processing

- Small, easy to carry keyboards
- Often already available in schools
- Easily transfer text to computer without needing the Internet

iPads
- Often readily available
- Requires the Internet to transfer text to a computer
- Can either use built-in onscreen keyboard or add a Bluetooth keyboard
Talking Word Processing

• Auditory feedback helps trigger next letter/word/sentence
• Allows self-evaluation on word choice, sentence fluency and organization
• Often have spell-checking built-in
Record or Dictate

• Speech-to-Text Software
  • Both for the computer and iDevices
  • Built into newer versions of Windows and MS Office
  • Both commercial and free dedicated applications are available

• Recorders
  – Tape recorders
  – Digital recorders
Livescribe Pen

- Both for writing and for recording
Spelling Supports

Franklin Electronic Speller

Ghotit - Internet Spelling Service

DK Spelling Dictionary
Webbing or Graphic Organizers

• Add every idea and then organize them
  – Then change to text mode and the outline is created

• One application asks questions about the topic and as you answer the questions in complete sentences you create your 1st draft
Writing Rate Enhancement

- Word prediction
- Word completion

‘fisiks’
To
‘physics’
AT 4 Math

√ Assessment
√ Classroom Trial
√ Implementation
Assessment: Determining Barriers

√ Sensory: see and hear clearly
√ Perceptual: decode symbols correctly
√ Cognitive: understand concepts of space, time, and quantity
√ Memory: remember math facts and processes
√ Reading: understand vocabulary & instructions
√ Motor: hold and write legibly with pencil
AT 4 Math - Sensory

√ Low vision may require large print texts and handouts, or a magnification device.

√ Blindness may require tactile manipulatives for early learning, and Braille materials for primary students.

√ Low hearing may require a listening system to amplify the teacher’s voice.

√ Deafness may require 1:1 instruction initially, but benefits from computer learning methods later on.
AT 4 Math - Perceptual

√ Students decode better when they can see and hear expressions simultaneously.
√ The ear does a better job understanding.
√ The eye does a better job focusing attention.
AT 4 Math - Cognitive

- Simplified curriculum.
- Concrete, 3-D manipulatives for working problems.
- Space, time, volume, and number concepts worked into other subjects: cooking, money management, science, story telling, art.
AT 4 Math - Memory

- Immersive math fluency games
- Tables and samples visible
- Programmed learning
- Calculators for math processes
- Music
AT 4 Math - Reading

√ Math vocabulary
√ Homework instructions depend on correct understanding of what math terms mean
√ A speaking electronic dictionary or reading pen can make it easier to understand math words and instructions
AT 4 Math - Motor

√ Grasping and holding a pencil
√ Writing in neat columns and rows
√ Turning pages
√ Alternative pencils
√ Alternative papers
√ Electronic textbooks
√ Dictation
Classroom Trials

√ 30 day trial of recommended A.T.
√ Device Library loans
√ Teacher demo/training
√ Frequent follow-up and problem solving
√ Remote assistance by IATP
√ If unsuccessful, determine the cause before trialing another solution
Implementation

√ Not every student needs a formal process for selecting A.T.

√ IATP offers informal consultation to any teacher via phone or email.

√ If you can provide examples of a student’s work with and without an intervention showing a difference in learning or output, you have what you need to justify making a change.
Tablets and Assistive Apps
Tablets and Assistive Apps

• Tablets have various uses
  – Tablets can access large App markets

• Built-in Accessibility Features
  – Ever Expanding

• Pros and Cons
iPad for Hearing

• Built-in Communication
  – Video Chat
  – Instant Message
  – Speech-to-text/Text-to-speech

• Hearing Aids/Loops/Mono Audio

• Apps
  – Sign Language
  – Sound Amplification
  – Relay Services
iPad for Vision

- Built-in Accessibility Features
  - VoiceOver, Siri, Zoom, High Contrast
- Compatible with Braille Devices
- Apps
  - Navigation
  - Color/Money Recognition
  - Optical Character Recognition
  - ebooks/Audiobooks
iPad for Cognition

• iPad is User Friendly and Intuitive
• Apps
  – Visual Schedules
  – Prompting
  – Calendaring
  – Behavior modeling
  – Building personalized social stories
  – Sound/video Recording
iPad for Mobility Disabilities

• Access Accessories
  – Switch Users

• Built-in Features
  – Siri
  – Assistive Touch

• Environmental Control Apps
iPad for Reading

• Apps for learning

• Access to
  – Textbooks
  – Audiobooks

• Enable Accessibility Features for
  – Large-print/High-Contrast
  – Multi-modal Reading
  – VoiceOver
iPad for Writing

• Use the Touch-Screen or an Accessory
• Speech Recognition (SIRI)

• Apps
  – Word Prediction
  – Mapping/Outline
  – Spelling
iPad for Speech Communication

- Apps that Simulate Speech
- Apps for Speech-Language-Pathologists
- Abbreviation Expansion and Guided Access
iPad for Math

• Apps available for most K-12 Math Skills
• Many Apps use virtual manipulatives
• Measurement Apps
  – Calculators
  – Rulers
  – Clocks/Visual Timers
  – Surface Level
iPad in the Classroom

- Share the Screen
- Monitor Student Progress
- Submit assignments wirelessly
How to Access Assistive Technology Services
Request AT Assessment or Training

• Formal assessments available for students on an IEP
• Training available for school personnel

www.idahoat.org
Online Trainings
AT trainings archived on the Idaho Training Clearinghouse
http://www.idahotc.com/

Free Computers
• Computers for Kids AT Application
  – www.cfkidaho.org
Lend Assistive Technology

- AT Lending Libraries in Moscow, Idaho Falls, Coeur d’Alene, and Boise.

Request items online [www.idaho.at4all.com](http://www.idaho.at4all.com)