Idaho Assistive Technology Project

Assistive Technology Resource Guide

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Mr. Tom Luna, Superintendent of Public Instruction
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Considering Assistive Technology
Assistive Technology Assessments and Training

The Individuals with Disabilities Education Improvement Act (IDEA) of 2004 mandates that Individualized Education Program (IEP) teams consider assistive technology (AT) and assistive technology services at least annually at the IEP meeting.

What is Assistive Technology (AT)?

- Assistive technology (AT) is any item, piece of equipment, or product system, whether acquired commercially or off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.
  - AT is used to access the physical environment of the school, the curriculum, recreation, the community, work, and home.

What are Assistive Technology Services?

- Assistive technology services are services that directly assist a child with a disability in the selection, acquisition, or use of an assistive technology device. The term includes:
  - the evaluation of the needs of a child with a disability, including a functional evaluation of the child in the child's customary environment;
  - purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by children with disabilities;
  - selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing assistive technology devices;
  - coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;
  - training or technical assistance for a child with a disability or, if appropriate, that child's family; and
  - 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.

What does it mean to ‘consider’ AT?

- Consideration is meant to be accomplished within the context of the IEP meeting.
- AT consideration is meant to be short, accomplished in approximately 20 minutes or less.
- At least one member of the IEP team should have AT expertise.
If the IEP team cannot reach consensus or if the team decides that they lack the expertise to have a thoughtful discussion about AT, an AT assessment should be triggered. Inquire whether your school district has an AT Team to provide AT assessments and technical assistance. If not, the Idaho Assistive Technology Project (IATP) can provide AT assessments at no charge to schools and families.

Who will perform the AT assessment?

- Your school district may have an AT Team to assist you with an AT assessment.
- If you receive an AT assessment through the Idaho Assistive Technology Project, an Assistive Technology Professional (ATP) credentialed through RESNA (Rehabilitation Engineering and Assistive Technology Society of North America) will perform the AT assessment. ATPs have:
  - an educational background in occupational therapy, physical therapy, speech-language pathology, special education, or rehabilitation;
  - ongoing work experience (.25 to .50 FTE) of direct AT consumer-related services;
  - passed a rigorous exam on all areas of AT; and
  - annual continuing education in AT.

What are the procedures for an AT assessment through the IATP?

- Fill out an online AT assessment application at www.idahoat.org (Quick Link – ‘School-based Services’).
- An ATP will be assigned to the assessment.
- The ATP will follow the Fundamental Assessment Process utilizing a student-centered team approach.
- The ATP looks at the student, environment, and tasks through observation, review of records, and input from Individualized Education Program (IEP) team members.
  - The ATP works to provide the tools to accomplish a student’s goals.
- Through a feature-matching process, potential AT devices and software are identified and tried with the student.
- The continuum of devices and software are considered to ensure cost effectiveness and identification of the most appropriate device.
- A written report will be provided within two weeks of the school visit for the IEP team to use as one tool in making AT decisions.
- Devices and/or software can be borrowed from the Idaho Center for Assistive Technology AT Lending Library for a time to continue the trial period or to use during the period of time need to identify funding and purchase of the item(s).
- The IEP team will be encouraged to collect ongoing performance data without technology (baseline) and with technology to demonstrate the impact of the AT over time.
What supports are available for AT training?

➢ The Idaho Assistive Technology Project provides free trainings to Idaho schools and families.
  o Schedule an onsite 1-2 hour training for administrators, special education staff, students, and families at no cost.
  o Request or join a live web-based training.
    ▪ Web-based trainings on assistive technology are also available at no cost. Webinars are easy to participate in. Participants access the visual part of the training through the Internet and a toll-free telephone conference line for the audio portion of the training.
  o Existing trainings include:
    ▪ Assistive Technology for Learning Disabilities
    ▪ Age-Appropriate Materials for Secondary Students with Significant Disabilities
    ▪ Assistive Technology for Communication
    ▪ Engineering the Environment for AAC
    ▪ Help for Struggling Writers: Inspiration and Kidspiration
    ▪ Picture Communication: Boardmaker
    ▪ Symbol/Text Word Processing
    ▪ Free Accessible Books and Textbooks
    ▪ Stimulus Guidelines – A Toolkit Approach to Universal Design in Learning - Making Sound Purchases of Assistive Technology That Will Benefit the Most Students for a Long Time to Come

➢ Many resources, tools, and electronic books are available free or at very low cost. To inquire, request, or register for upcoming trainings please contact the Idaho Assistive Technology Project, 800-432-8324, noraj@uidaho.edu.

➢ Trainings available for self-study are available on the Idaho Training Clearinghouse Assistive Technology Learning Community. Included are three videos (The IEP Team & AT Decisions, Assessment Made Easy, and AT: More than Computers) developed by the Wisconsin Assistive Technology Initiative (WATI), national leaders in assistive technology assessment. Also available for self-study are audio PowerPoint trainings, AT for Math, AT for Learning Disabilities, and Age-appropriate Materials for Secondary Students with Significant Disabilities.
  o Please view these excellent training videos at http://itcnew.idahotec.com (Learning Community – AT – Trainings).
Access to the Curriculum for Students with Significant Disabilities

Students with significant disabilities pose unique challenges to accessing the curriculum, but there are many low to high tech tools to help bridge this gap. How can we assess what a student knows who is nonverbal, cannot grasp a pencil, access a standard keyboard, or who has other multiple disabilities? How can we provide the direct instruction necessary for the student to learn? Assistive technology provides the critical access to the curriculum these students need.

Communication

Alternative and Augmentative Communication (AAC) should be used not only as a way for a student to communicate his or her wants and needs. Students with significant disabilities need a way to communicate mastery of the curriculum after direct teaching.

➢ Eye Gaze
  o Eye gaze frames can be used to communicate, teach, and assess. Home-made from plastic pipe or a purchased Plexiglas frame, the instructor stands behind the frame, and the student uses eye gaze to demonstrate understanding and mastery, communicate, and to write.

➢ Communication Boards or Books
  o Communication boards or books contain letters, words, graphic symbols, pictures, and/or objects that a student would point to in order to communicate wants and needs, understanding, and as an alternative way to write.
    ▪ Direct pointing can be with hands, fingers, elbows, toes, etc. For students with little use of limbs, try commercially purchased or home-made head pointers or chin pointers. Talk to your school Occupational Therapist for pointing options.

➢ Voice Output Devices
  o Voice output devices range from simple to very complex systems utilizing recorded or synthesized speech used to communicate and gain access to the curriculum.

Computer Access

Students with significant disabilities who cannot access the curriculum through traditional paper, pencil, and printed educational materials, will need to access many of those parts of the curriculum through the computer. How will the student access the curriculum if he or she cannot run a standard mouse and keyboard?
Alternative Computer Mice (see attached Alternative Mice and Onscreen Keyboard Information Sheet)
  o If a student cannot use a standard computer mouse, an alternative can be found. Touch monitors, adapted mice, and joysticks are examples of alternative mice that can perform the same functions as a standard mouse. Onscreen keyboards can also be utilized with alternative mice for access to a keyboard. See attached alternative mice information sheet for more detailed information.

Switch Access (see attached Switch Access Information Sheet)
  o From simple cause and effect to highly sophisticated scanning, some students will need to use switch(es) to access the computer. In addition, a switch interface is hardware that allows a switch(es) to activate a specific keyboard or mouse function(s) on a computer. See attached switch access information sheet for more detailed information.

Alternative Keyboards (see attached Alternative Keyboards Information Sheet)
  o Keyboards come in many shapes and sizes to accommodate students with significant disabilities. There are keyboards with big keys, keyguards (to help isolate each key and avoid inadvertently pressing the wrong key), one-handed keyboards, keyboards with high contrast, etc. See attached alternative keyboards information sheet for more detailed information.

Purchasing resources are attached.

Need help to identify the device with the features necessary for a particular student? Request an assistive technology assessment through the Idaho Assistive Technology Project, [www.idahoat.org](http://www.idahoat.org) (Quick Link – ‘School-based Services), 800-432-8324.

Devices can be borrowed for trial purposes from the Idaho Center for Assistive Technology, 888-289-3259, [www.idahocat.org](http://www.idahocat.org)
**What is a switch interface?** A switch interface is hardware that allows a switch(es) to activate a specific keyboard or mouse function(s) on a computer.

Examples
- Switch Hopper – RJ Cooper
- Crick USB Switch Interface – Crick Software
- Hitch - Ablenet
- Don Johnston Switch Interface Pro 5.0 – works with Vista, Leopard and Linux
- Intelliswitch – Madentec or Intellitools
**Hybrids of Switch and Switch Interface**

- **Switch Click & Mini Click - Ablenet** – enters a left mouse click, can plug an alternative switch into it.

- **DiscoverPro - Madentec** – generates onscreen keyboards with both visual and auditory scanning, also provides set-ups for Intelliswitch and Intellikeys.

- **SuperSwitch - RJ Cooper** – switch with built-in switch interface.

- **Intellikeys Keyboard (Intellitools)** – has two switch jacks built in, can program what each switch hit will do.
Use a switch, switch interface and scanning software to access computer applications and the internet.

What is scanning? 
Example of row/column scanning

Is the desired letter within the darkened row? If yes, hit the select switch.

Is the letter within the darkened column? If yes, hit the select key.
Row/Column scanning can be done using Automatic Scanning where the computer automatically advances the scan after a predetermined time or Two-Switch Scanning where one switch advances the scan and a second switch selects the item.

Other examples of scanning include item and inverse (start at the bottom and go up).

Above is an example of item scanning.
Switch Utility Software

Switch utility software allows access to standard software not already adapted for switch access. It can give a switch user access to any software application and with an onscreen keyboard added, the switch user can do anything anyone else can do.

- **Crosscanner** – RJ Cooper, requires minimal set-up to work.

  ![Crosscanner Diagram]

  The line comes down, \[ \downarrow \text{the finger goes across}\ \downarrow \]

  Use a single switch/key to control both.

- **Scan Buddy** – Applied Human Factors – mouse emulator that lets you use one or two switches to perform mouse functions. It divides the display into first in half, then into quarters, then into eighths, and finally into sixteenths. Then it uses a falling line and hand moving left to right until the item that needs to be clicked, or click-and-dragged is under the hand and is clicked on with a switch.
Alternative Keyboards

1. **Programmable** – Intellikeys (Intellitools)

With the ErgoDex, you program each individual key for a combination of keystrokes – not the keys position on the keyboard. In Windows each key only works within a specific software program such as “Word”. The Mac version has more general use keyboard equivalents.
The Intellikeys is a membrane keyboard that comes with interchangeable overlays in a variety of layouts.
Using either “Overlay Maker” (Intellitools) or “DiscoverPro” (Madentec) software one can create any type of a programmable keyboard, you can change the number of keys, key function and the layout of the keys.
As overlay looks in the Overlay Maker.

Finished overlay.

Intellikeys with an overlay created with DiscoverPro.
2. One-Handed – Dvorak one-handed (right or left), BAT right or left (Infogrip), TASH Mini-Keyboard (Ablenet)
3. Software Solutions and training for one-handed typing – **Half-Qwerty** (Matias) and **Five-Fingered Typist** (Mayer-Johnson). **Five-Fingered Typist** teaches the individual how to type with one hand on a standard keyboard. **Half-Qwerty** is software that puts, figuratively, one-half of the keyboard on top of the other side of the keyboard.
Smaller-sized keyboards work well for individuals with small hands keyboarding with only one hand.

4. Other Keyboard Layouts – ABC – Big Keys Keyboard (Enablemart), Maltron,

Dvorak (see page 5), Frequency of use (see Tash Mini page 5).
Sources

Ablenet
2808 N. Fairview Dr.
Roseville, MN 55113
800-322-0956
www.ablenetinc.com

Applied Human Factors
P.O. Box 228
Helotes, TX 78023
888-243-0098
www.ahf-net.com

Crick Software
50 116th Ave. SE, Suite 211
Bellevue, WA 98004
866-33-CRICK
www.cricksoft.com

Don Johnston, Inc.
26799 W. Commerce Dr.
Volo, IL 60073
800-999-4660
www.donjohnston.com

EnableMart
EnableMart Sales Office
c/o MRN, Inc.
5353 South 960 East
Suite 200
Salt Lake City, UT. 84117 - USA
888-640-1999 (Toll Free)
Fax: 1-866-487-0410
www.enablemart.com

Infogrip
1794 East Main Street
Ventura, CA 93001
Phone: 800-397-0921
www.infogrip.com

Intellitools, Inc.
1720 Corporate Circle
Petaluma, CA 94954
Phone: 800-661-8406
www.intellitools.com

Madentec Limited
3022 Calgary Trail S.
Edmonton, AB, T6J 6V4
Canada

USB Mini-Keyboard
EMG Impulse Switch
Hitch Switch Interface
SwitchClick

REACH Interface Author 4.0
REACH Scan Plus
REACH with Smart Keys

Clicker 5
Crick USB Switch Interface

Switch Interface Pro 5.0

Carries many of these keyboards and software

Carries many of these keyboards and software

Intellitools Keyboard
Overlay Maker
Classroom Suite
Intelliswitch

ScreenDoors
Tracker Pro
Discover:Screen
Discover:Envoy
Matias Corporation
600 Rexdale Blvd., Ste. 1204
Toronto, ON M9W 6T4 Canada
Phone: 858-550-0084
www.matiascorp.com

Mayer-Johnson
P.O.Box 1579
Solana Beach, CA 92075-1579
Phone: 416-749-3124
www.mayer-johnson.com

RJ Cooper and Associates
24843 Del Prado, Ste. 283
Dana Point, CA 92629
Phone: 800-RJCooper
www.rjcooper.com

Phone: 800-899-6687    Intelliswitch
www.madentec.com

Matias Corporation    Half-QWERTY
600 Rexdale Blvd., Ste. 1204
Toronto, ON M9W 6T4 Canada
Phone: 858-550-0084
www.matiascorp.com

Mayer-Johnson    Five-Finger Typist
P.O.Box 1579
Solana Beach, CA 92075-1579
Phone: 416-749-3124
www.mayer-johnson.com

http://www.lakefolks.org/cnt/    Click n’Type

http://www.wati.org/?pageLoad=content/supports/free/index.php    WATI – many publications on Assistive Technology for educators
Alternative Mice and Onscreen Keyboards

**Alternative Mice** - An alternative mouse is any device that performs the same function as a standard mouse. Includes trackballs, joysticks, etc.

1. Touch screens, TouchWindows, and Touch Monitors – the entire computer display is an alternative mouse. Anywhere that is touched acts as a mouse click. This type of alternative mouse is very useful for young and cognitively young students.

2. Trackballs and Joysticks – these work well as alternative mice.

- **Penny+Giles Joystick Plus** – has separate button for double click.
- **Penny+Giles Trackball Plus** – has separate button for double click

Available from Enablemart and Infogrip.

- **Magic Touchscreen by Keytec.**
  Available from RJ Cooper, Enablemart and Infogrip.

- **Sam Switch-Enabled Trackball** – RJ Cooper and Enablemart

- **Marble Mouse** - Enablemart
3. **Head Movement** - Mouse access through head movement include the Tracker Pro (Madentac), the Smart Nav (RJ Cooper), the Headmouse (Origin) and the LaZee Mouse Pro (LaZee Tek). They all use a switch for the mouse click or dwell software (see below).

4. **Facial Muscle Movement** - Mouse access through face muscle movement or eye movement includes the Cyberlink (Brain Actuated Technologies) – individual wears a head band,
and the Impulse EMG Switch (Ablenet) – individual wears the switch itself.

5. Mouth control – the Integra Mouse and the QuadJoy, (both available from Enablemart) use tongue movements to control the cursor.

6. **Dwell** software is a type of program that uses a timer to activate a mouse click. The cursor is left resting on an icon and after a predetermined time, the software generates a mouse click at that location. Examples include: “MagicCursor 2000” (Madentec), “SmartClick” (RJ Cooper), and “QualiClick” (QualiLife).

7. Voice Recognition software such as “Dragon NaturallySpeaking” has a ‘Mouse grid’ that allows an individual to control all mouse movements on the computer hands free. Another option is the voice recognition built into Windows XP and Vista.
8. Keyboard mouse controls – Mouse Keys allows an individual to control the mouse using the numeric keypad. This is found in the Control Panel under Accessibility or Ease of Access.

**Onscreen Keyboards** - An onscreen keyboard is a software program that allows you to use a mouse, touch screen or switch to enter all the characters and functions of a keyboard. Many programs include word prediction and word expansion.

- **ScreenDoors** – Madentec

- **Reach** – Applied Human Factors
This illustrates SmartKey technology – as a letter is selected, only those letters that commonly follow it are left on the keyboard. This allows much faster text entry for individuals using switch scanning.

(available from Enablemart)
• **Classroom Suite** – Intellitools

![Intellitools Classroom Suite](image1)

- Harry Potter
- has magic powers

• **Onscreen** – RJ Cooper

![Onscreen by RJ Cooper](image2)

- A wizard
- Lord Voldemort
- A horse
- Lord Voldemort
- Click n’Type – www.lakefolks.org

- Discover Screen (Windows) – Madentec

- Discover Envoy (Mac OS X) – Madentec
- **Windows Onscreen** – Built into Windows OS XP and Vista and found in Accessories under Accessibility or Ease of Use.
Reading
Assistive Technology for Students with Significant Disabilities

Students with significant disabilities may develop literacy skills and participate in literacy activities aligned with the general curriculum with direct instruction and the help of assistive technology.

Reading Instruction

Students with significant disabilities need systematic direct instruction in reading. If your school is using a scientifically based researched reading curriculum that is proven to support phonemic awareness, phonics, fluency, vocabulary, and comprehension, this curriculum may be adapted to our nonverbal students. The Georgia Bureau for Physical and Health Impairments has a good example of a nonverbal reading approach utilizing assistive technology at http://education.gsu.edu/physicaldis/mnon.htm. A short video example of this teaching method can be viewed at http://education.gsu.edu/PhysicalDis/strategies/qt/vocab.mov and measuring comprehension at http://education.gsu.edu/PhysicalDis/strategies/qt/read.mov.

Access to the alphabet

In order to teach and assess phonemic awareness and to use as alternative pencils for writing for nonverbal students who do not have a way to access paper and pencil or a standard keyboard, the following low-tech assistive technology can help:

- Alphabet eye gaze frame
- Alphabet flip chart
- Braille flip chart
- Alphabet overlays for Intellikeys keyboard
- Switch accessible onscreen alphabet keyboards

Directions for making all the above alternative pencils can be purchased from the University of North Carolina at Chapel Hill’s Center for Literacy and Disabilities Studies, http://www.med.unc.edu/ahs/clds. The Center for Literacy and Disabilities Studies has a wealth of information to share on literacy for students with significant disabilities.
Reading Curriculum

- **Early Literacy Skills Builder (ELSB)** is a research-based and language-rich literacy curriculum for children ages 5 to 10 with moderate to severe developmental disabilities. It incorporates systematic instruction to teach both print and phonemic awareness. *ELSB* is a multi-year program with seven distinct levels and ongoing assessments so students progress at their own pace. Each level includes a scripted Teacher’s Manual and full-color Student Materials and Student Assessments. *ELSB*’s Principal Investigator is Diane Browder, PhD, University of North Carolina, Charlotte, and is available at Attainment Company, [www.attainmentcompany.com](http://www.attainmentcompany.com).

- **The MEville to WEville with Literacy Starters Program** is a research-proven multi-year literacy curriculum paired with age-appropriate content for beginning readers with significant disabilities in grades K-5. This curriculum developed by Karen Erickson, PhD, University of North Carolina at Chapel Hill Center for Literacy and Disabilities Studies, helps teachers accelerate student outcomes by building generalizable literacy skills. *MEville to WEville with Literacy Starters Program* is available at Ablenet, Inc., [www.ablenetinc.com](http://www.ablenetinc.com) and Don Johnston, Inc., [www.donjohnston.com](http://www.donjohnston.com).

Accessible Skill Building

- **Making Words** is an accessible software program based on the hands-on phonics and spelling work of Dr. Patricia Cunningham with an ability level for grades K-3 and interest level for grades K-8. *Making Words* also collects individual student data. For students who cannot physically manipulate letter cards to make words, this program is accessible via mouse or scanning and is available at Don Johnston, Inc., [www.donjohnston.com](http://www.donjohnston.com).

- **Simon S.I.O.** is a motivating phonics intervention program developed in collaboration with Dr. Ted Hasselbring, Vanderbilt University and uses a personal tutor to deliver individualized instruction and corrective feedback to ensure students acquire the critical skills they need to become readers. *Simon S.I.O.* is accessible via mouse or scanning and provides student progress reports. It is available at Don Johnston, Inc., [www.donjohnston.com](http://www.donjohnston.com).

- **Intellitool's Classroom Suite** is a multimedia accessible software with reading, writing, and math skill building activities with built-in data recording. Software and free activity exchange available at Cambium Learning Systems, [www.intellitools.com](http://www.intellitools.com).
- **Edmark Reading Program** teaches beginning reading and language development to nonreaders and those who have been unsuccessful using other programs. This program teaches sight recognition of a word, introduces its meaning, provides comprehension activities, and uses the word in story context. It is available from [www.enablemart.com](http://www.enablemart.com).

- **Starfall Website**, [www.starfall.com](http://www.starfall.com), is a skill building website opened in September of 2002 as a free public service to motivate children to read with phonics. Skill building activities have audio support. Electronic books included.

### Accessible Reading Material

Students with severe multiple disabilities do not have as many opportunities to independently look at and read books as their peers. Reading material should be **age-appropriate**. There are many sources of low level high interest reading materials. The following are sources of accessible reading material. Some sources require students to have **print disabilities** whereas others are open to all. A print disability is a disability which keeps a student from accessing a book in a normal way due to blindness, visual impairment, physical impairment, and/or severe learning disability in reading. The print disability can be a student’s primary or secondary disability.

#### Low-tech Reading Material Solutions

- Make hard copy books more accessible to students who cannot turn the pages of a standard book.
  - Page fluffers
  - Tabs
  - Cut the binding of the book and put the pages in a three-ring binder
  - Magnifiers

#### Electronic Reading Material

- **Tar Heel Reader**, [www.tarheelreader.org](http://www.tarheelreader.org), is a collection of free, easy-to-read, and accessible books on a wide range of topics. The books may be downloaded as slide shows in PowerPoint, Impress, or Flash format. Each book can be speech enabled and accessed using multiple interfaces, including touch screens, IntelliKeys with custom overlays, and 1 to 3 switches. There are thousands of books on this site and it can be used by **anyone**!
- **Accessible Book Collection**, [www.accessiblebookcollection.org](http://www.accessiblebookcollection.org) is a collection of accessible picture books (utilizing *Classroom Suite* or *Clicker* software) and high interest low level electronic text reading material. A low subscription rate is charged and students must have a **qualifying print disability**.
Bookshare, [www.bookshare.org](http://www.bookshare.org) is a collection of digital books (books are text only at this time). A free Bookshare text reader is included with free membership for students with a qualifying print disability.

Stories in Picture/Text Format can be made with picture/text word processing software such as *Picture It* from Slater Software and *Writing with Symbols* from Mayer-Johnson. Ready-made free PDF stories can be viewed or printed from the Slater Software website, [http://www.slatersoftware.com/document.html](http://www.slatersoftware.com/document.html).

Make it yourself/Personalize It - Students who seem to lack interest, motivation, and understanding from reading material may be highly motivated by books about themselves, their family, friends, school activities, etc. These materials are easy to make.

- **PowerPoint and PowerTalk** - Personalized electronic or printed books made with PowerPoint (PowerTalk is a Free Open Source Windows program that automatically speaks the text on any PowerPoint presentation) are highly motivating to students. Insert videos into the PowerPoint and make it even more motivating and a powerful video modeling tool to promote new positive behavior, vocabulary and reading.
  - *Success Stories: Using Video Stories to Connect, Communicate, and Create True Success with Your Students*, by Jessica Roberts

*Start-to-Finish Literary Starters* by Don Johnston, Inc., [www.donjohnston.com](http://www.donjohnston.com), are themed books which come in sets of three. The Literary Starter books have an ability grade level of PK-1 and an interest grade level of 3-12. The Enrichment text is meant to be read to the student in an interactive way. This develops a love for reading while introducing new topics and concepts and increasing vocabulary. The Transitional Text expands students’ print processing skills and simple word-reading strategies and is meant to be read with the student. The Conventional Text is simply worded and meant to be read independently by the student after gaining concepts and vocabulary with the enrichment and transitional texts. Books can be purchased in paperback or as an accessible computer book on CD.

*Start-to-Finish* books by Don Johnston, Inc., [www.donjohnston.com](http://www.donjohnston.com), are narrative chapter books with an ability grade level 1.5-5.5 and interest grade level 5-12. The books have large, full-color photos and illustrations placed to support text. Books are available in paperback or computer books. Computer books have short video clips to support difficult concepts and audio support with sentence-by-sentence highlighting.
Switching On, a computerized book series by Don Johnston, Inc., www.ablenetinc.com, provide switch access to books on history, habitats, Earth, and solar systems. These books have an ability grade level of PK-1 and interest grade level of 4-8.

News-2-You, www.news-2-you.com, provides symbol support for a weekly newsletter that can either be downloaded to print or listened to online. It has four levels of vocabulary and symbol support and has a Spanish version as well. News-2-You also has online activities to reinforce the weekly story. It has an annual subscription cost.

Storyline Online, www.storylineonline.net, website features high quality picture books being read by members of the Screen Actors Guild.

Audio Books


Libraries – Local and school libraries have collections of audio books to borrow.

Recording for the Blind and Dyslexic (RFBD) – RFB&D, www.rfbd.org, has narrator read audio books. Memberships are free to qualifying students.


Alternative Reading Material

Schedules – All students needs schedules. Picture/photo/tactile schedules paired with words help students anticipate their daily activities, provide structure, and provide opportunities to read.

Menus and Recipes – Picture/photo menus and recipes provide students with an accessible way to make choices and follow directions.

Music Lyrics – Music lyrics to favorite music are highly motivating for students. Find lyrics at www.letssingit.com and www.lyrics.astraweb.com

Talking photo album – The Talking Photo Album from Attainment Company has 24 pages and allows 10 seconds of audio recording for each page. Add text to each page and make a full literacy experience, www.attainmentcompany.com.

Express One or Go Talk Card are one-page talking photo album options also from Attainment Company.

Switch-activated Camera – It may be very motivating for students to take their own photos of events, places and people. Switch activated digital cameras and camera wheelchair mounts give students without the ability to hold a camera in a traditional way a chance to express themselves with photos. Pair those pictures with words for personalized reading material.
Writing
Assistive Technology for Students with Significant Disabilities

Writing is the representation of our thoughts and ideas. Writing is an important part of a student’s overall literacy development. Students have many daily opportunities to practice and develop their writing. Assistive technology makes writing accessible to all students.

For Students Who Can Hold and Manipulate a Pencil

For students who can hold and manipulate a pencil but are still struggling to control the paper and pencil, we can adapt the writing surface and/or the writing tool.

Adapt the Writing Surface

- Clipboard
- Slant board
- Adapted paper
  - Raised line paper
  - Different widths of lined paper
  - Skipping lines on the paper and shading in the skipped line
  - Putting dots where to begin
  - Graph paper
  - Spacers

Adapt the Writing Tool

- Pencil grips
  - Pencil grips come in many shapes and sizes. Try a variety of grips.
- Triangular pencils

Sources

Therapro, www.therapro.com
Onion Mountain Technology, www.onionmountaintech.com
Greenbean Products
  - Write Size Writing System - www.greenbeanproducts.com
    - Inexpensive systematic approach to gain control of letter size, spacing, and keeping letter on the baseline
For Students Who Cannot Hold and Manipulate a Pencil

Alternative Pencils

Developed by Karen Erickson, PhD and Gretchen Hanser, PhD, the Center for Literacy & Disability Studies at the University of North Carolina at Chapel Hill, “alternative pencils” for students with the most significant disabilities, including deaf-blindness, allow access to the alphabet.

”Alternative pencils should be used with students who have a range of understandings about writing, all the way from random, emergent “scribbling” to more conventional writing with recognizable words. Children without disabilities have hundreds of hours of drawing and scribbling to help them grow into more sophisticated writers. Over the past 4 years, the same type of development has been seen with students with the most significant disabilities when they are given the same opportunities with alternative pencils.”

Alternative pencils include:

- Alphabet eye gaze frame
- Alphabet flip chart
- Braille flip chart
- Alphabet overlays for Intellikeys keyboard
- Switch accessible onscreen alphabet keyboards

Directions for making all the above alternative pencils can be purchased from the UNC-Chapel Hill’s Center for Literacy and Disabilities Studies, http://www.med.unc.edu/ahs/elds. The Center for Literacy and Disabilities Studies has a wealth of information to share on literacy for students with significant disabilities.

Portable Talking Word Processor

Students who can access a standard keyboard may benefit from the portability of a portable talking word processor for beginning writing. Some portable word processors have built-in speech, for others it is an add-on.

- Fusion, www.writerlearning.com
- Neo and Dana Word processors, Renaissance Learning, http://www.renlearn.com
Writing with Whole Words or Symbols

Writing with whole words or symbols can be accomplished in different ways. Low-tech examples of writing with whole words include:

- Word and/or picture/word cards made from card stock or index cards
- Magnetic words on a small white board

Picture/Word Writing Grids

There are software programs to write with whole words and picture/words. Easy-to-create accessible word bank grids give students an opportunity to create sentences. Text-to-speech ability gives students auditory feedback. Grids and word banks can range from simple (errorless) to complex (word choice).

- Clicker, Cricksoft, www.cricksoft.com
- Pix Writer, Slater Software, www.slatersoftware.com
- Classroom Suite by Intellitools (Cambium Learning Technologies), www.intellitools.com

Word Prediction

Dr. Karen Erickson, Director of the Center for Literacy and Disability Studies, University of North Carolina at Chapel Hill recommends using Co:Writer word prediction software as soon as students are able to identify the initial consonant for some words, at least some of the time.

- Co:Writer Settings for beginning writers:
  1. Launch Co:Writer.
  2. Select the student for whom you are creating this set-up if asked.
  3. Select no template when asked to select a template.
  4. Select word window as your Co:Writer window.
  5. Select predict always.
  7. Select flexible spelling.
  8. Select 6 guesses.
  9. Select hide numbers.
  10. Click on larger 4 times to make the text size as large as possible.
  11. Select a color scheme that is best for your student. We tend to use the black text on the aqua background. DO NOT choose black text with the white background because it does not provide enough contrast between the Co:Writer box and word processing program when Co:Writer is used.
12. Now you are ready to use *Co:Writer* with *Write:OutLoud* or the word processing software of your choice.

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**WordQ with SpeakQ** is another word prediction software combination to experiment with for students who can identify the initial consonants of some words and who also have clear speech.

- *WordQ* suggests words to use and provides spoken feedback. *SpeakQ* is plug-in software that enhances *WordQ* version 2 or higher with a simple speech-to-text function. Can’t find the word you need through Word Q? Just speak the word into the computer, and your choices will pop up via *Speak Q*.

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**Dictation**

Students with a voice can dictate writing with digital recorders, recording software, and dictating services. The advantage of digital recording is the ease of storage and transfer to computer.

- Digital recorders (inexpensive and available at any office supply store)
  - Free downloadable recording software
- *Sound Forge* - [http://www.sonycreativesoftware.com/soundforge](http://www.sonycreativesoftware.com/soundforge)
  - Inexpensive recording software
- *iDictate* – [www.idictate.com](http://www.idictate.com)
  - Dictate over the phone for approximately a penny per word. Receive typed copy of dictation via email or website
**Graphic Organizers**

Using graphics helps students trigger the words needed to write. Graphic organizers can be used for organizing and sparking words for setting, characters, and the beginning, middle, and end of a story.

- **Driting**
  - Student draws and then “writes” (including scribbles, beginning sound letters, whole words).
- Many graphic organizer sheets are available on the Internet
- **DraftBuilder** [www.donjohnston.com](http://www.donjohnston.com) provides questions whose answers generate balanced compositions from a single paragraph to an entire research paper.
Math
Assistive Technology for Students with Significant Disabilities

Students with significant disabilities may be able to access the general math curriculum by adapting the curriculum to meet individual needs and assistive technology. With direct instruction and by making abstract math concepts visual and concrete, math can be accessible to many students.

Low-Tech Math Tools
- Counters
- Abacus
- Number and operation stamps
- Number and operation magnets
- Number line
- Number charts
- Teaching clock

Mid-Tech Math Tools
- Calculator
- Large key calculator
- Talking calculator
- Adding machine with paper tape
- Money calculator (Coin-U-Lator)
- On-screen calculator
- Electronic checkbook
- Talking watch/clock
- Timer
- Digital thermometer
- Talking thermometer

High-Tech Math Tools
  - MathPad enables students to do arithmetic directly on the computer. The program is ideal for students who need help organizing or navigating through math problems or who have difficulty doing math with pencil or paper.
  - Many students with significant disabilities do not have the motor control to maneuver math manipulatives which many students need in order to understand math concepts. The National Library of Virtual Manipulatives helps make the abstract concrete through virtual manipulatives.
  - K-12 numbers and operations, algebra, geometry, measurement, data analysis and probability
Math Curriculum For Students with Significant Disabilities

- Teaching to Standards: Math, [www.attainmentcompany.com](http://www.attainmentcompany.com)
  - Aligns to NCTM Standards
  - Suitable for ages 12-21
  - Accommodates nonverbal students
  - Scripted lessons with 5 levels of teacher support
  - A full-year curriculum covering Geometry, Algebra, Data Analysis, and Measurement

Accessible Skill Building Software (Note: Most software available for free trial period)

- Stages Math: Number Sense, [www.intellitools.com](http://www.intellitools.com)
  - Stages Math: Number Sense is a comprehensive set of 20+ accessible activities that give your K-3 learner unlimited practice in eight key areas of number sense.

  - Accessible via touch screen/monitor, single switch, Intellikeys

Additional Resources

- Onion Mountain Technology, [www.onionmountaintech.com](http://www.onionmountaintech.com)
  - LoTTIE (Low Tech Tools for Inclusive Education) Math Toolkit is a collection of low and mid tech tools designed to help teachers, classroom aides, and parents evaluate needs and support the math work of students in grades K-12.

- Classroom Suite 4, [www.intellitools.com](http://www.intellitools.com)
  - Classroom Suite 4 is an accessible multimedia tool for teaching reading, writing, and math concepts. Many additional free activities available on Classroom Suite Activity Exchange.

- Kidspiration, [www.inspiration.com](http://www.inspiration.com)
  - Created for K-5 learners, Kidspiration develops thinking, literacy and numeracy skills using proven visual learning principles. In reading and writing, Kidspiration strengthens word recognition, vocabulary, comprehension and written expression. With new visual math tools, students build reasoning and problem solving skills.
Assistive Technology Resources

Assistive Technology Assessments and Training
Idaho Assistive Technology Project
Nora Jehn
Training Coordinator
121 West Sweet Avenue
Moscow, Idaho 83843
800-432-8324
208-885-6112
noraj@uidaho.edu
www.idahoat.org

Idaho Training Clearinghouse
Assistive Technology Learning Community
Online trainings, Teacher’s Guide, Resources
http://itcnew.idahotc.com/dmn

Assistive Technology Demonstration and Lending
Idaho Center for Assistive Technology
Assistive Technology Lending Library and Demonstration Site
5420 Franklin Rd., Suite A
Boise, ID 83705
208-377-8070
http://www.idahocat.org

Coeur d'Alene Hand Therapy and Healing Center
Assistive Technology Demonstration Site
2448 Merritt Creek Loop, Riverstone Complex
Coeur d’Alene, ID 83814
208-664-2901

Living Independently For Everyone, Inc. (LIFE, Inc.)
Assistive Technology Demonstration Site
250 S. Skyline
Idaho Falls, ID. 83402
208-529-8610

Idaho Assistive Technology Project Demonstration Site
121 West Sweet Avenue
Moscow, Idaho 83843
800-432-8324
www.idahoat.org
References/Resources for Students with Significant Disabilities

- AT Journals/Periodicals
  - Assistive Technology, [www.resna.org](http://www.resna.org)
  - Closing the Gap, [www.closingthegap.com](http://www.closingthegap.com)
  - Special Education Technology Practice, [http://www.setp.net](http://www.setp.net)