Assistive Technology Information Packet

- **TN State Department of Education Division of Special Education**
  - What is Assistive Technology?
  - Questions and Answers – Assistive Technology for Students with Disabilities

- **Center on Technology and Disability (CTD)**
  - Assistive Technology 101
  - Assistive Technology Glossary
  - Getting Started: Exploring Assistive Technology (AT) with Your Teen or Young Adult

- **Assistive Technology Consideration Checklist** - Adapted from Wisconsin Assistive Technology Initiative (WATI), Miami-Dade County Assistive Technology Procedures, Georgia Project for Assistive Technology, Oregon Technology Access Program and St. Charles Parish Public Schools Consideration forms

- **Capitol Region Education Council (CREC)**
  - Apps for Middle and High School Students with Learning Disabilities

- **Parent to Parent of Georgia**
  - Fast Sheet: Assistive Technology

- **PACER Center**
  - Assistive Technology for Infants, Toddlers, and Young Children with
  - Learning to Communicate: A Timeline for Typical Development
  - Examples of Assistive Technology for Young Children
  - Introduction to Assistive Technology (AT) for Young Learners Trainer's Manual
  - What is Assistive Technology and How Can it Help My Child? Tip for Parents

- **Center for Parent Information & Resources (CPIR)**
  - Considering AT for Students with Disabilities: A Resource for IEP Teams

- **Family Center of Technology and Disability**
  - Family Information Guide to Assistive Technology

- **Resources and Links**

What is Assistive Technology?

"Assistive technology includes a wide range of tools, from a simple, low-tech device such as a magnifying glass, to a complex, high-tech device, such as a computerized communication system. AT products can be made by hand, purchased off the shelf, or adapted from an existing product. The term "assistive technology" is often misunderstood to apply exclusively to electronic devices or products; however, AT includes non-electronic, low- and high-technology items or equipment.

Assistive technology services help individuals acquire and use AT devices. They include, but are not limited to, assessment of an individual's need for specific AT items, "trialing" of potential devices, training for all involved, maintenance of devices, and evaluation of the individual's experience with selected items."[1]

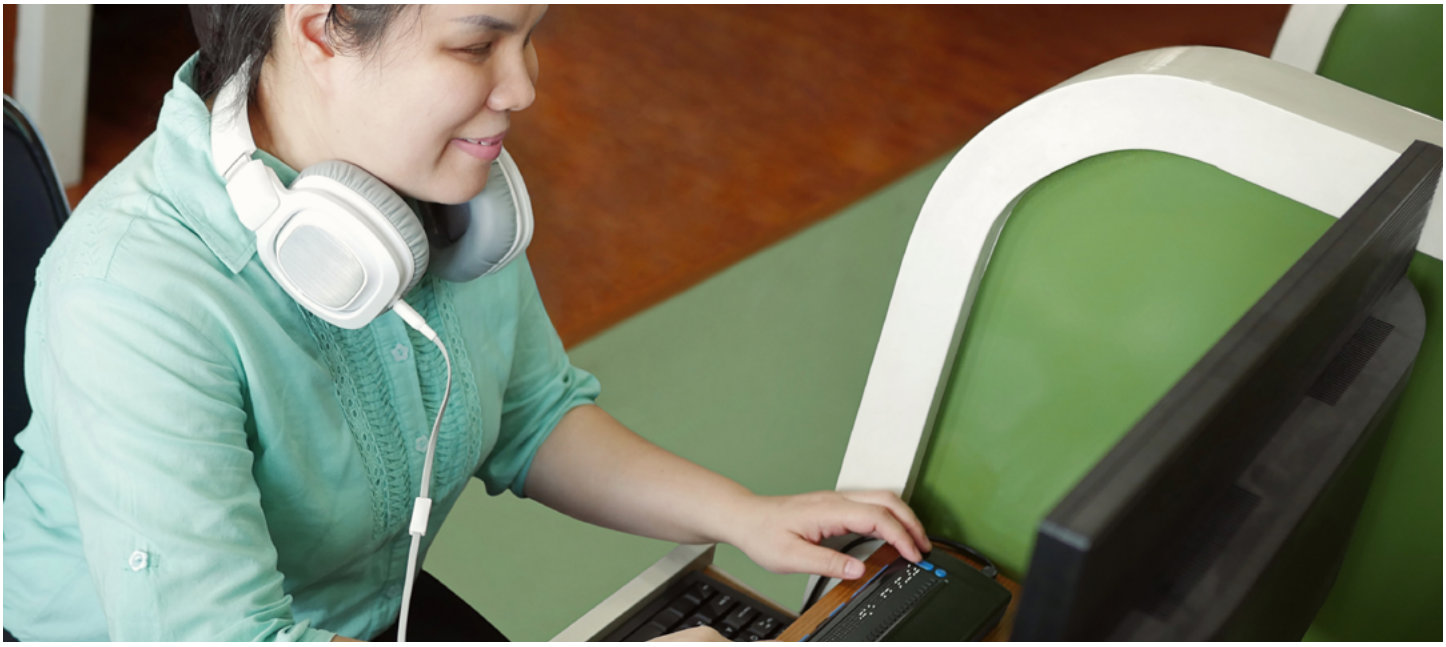
Assistive Technology Services

AT services as defined in IDEA Sec. 1401 include:
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, loaning, or otherwise providing for the acquisition of assistive technology devices by children with disabilities;
Selecting, designing, fitting, customizing, adapting, applying, retaining, repairing, or replacing assistive technology devices;
Coordinating and use 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 or rehabilitation services), employers, or other individuals who provide services to employ, or are otherwise substantially involved in the major life functions of children with disabilities.

1 Assistive Technology 101: Get informed about assistive technology for your child. The Center on Technology and Disability is funded by the U.S. Department of Education, Office of Special Education Programs (OSEP) under award #H327F130003 – 13A.

Assistive Technology Devices Domains

AT Domain	Definition/Explanation	Examples *(Not an exclusive list)*
Cognitive & Academic	***Academic and Learning Aids*** Electronic and non-electronic aids to support access to reading, writing composition, (including motor aspects of writing), and math instruction.	Calculators, computer-based software, text-to-speech, speech-to-text, word prediction, spell check, electronic or audio books, graphic organizers, outline templates, slant boards, highlighting, reading windows, etc.
	Cognitive Aids and Self-Monitoring Supports Supports, tools, or devices to aid students in self-monitoring, organizing, time management, studying, or planning.	Calendars, agendas, memory aids, color coding systems, adapted paper, timers, pictured sequences/steps of an activity, headphones, etc.
Adaptive	***Aids for Daily Living*** Self-help aids to support independence in activities such as eating, bathing, cooking, dressing, and toileting.	Adapted utensils, drinking aids and eating equipment, hygiene tools, reachers, adult changing tables, dressing aids, etc.
	Access to Computers and Electronics Aids Hardware or software aids to provide a student access to a computer or other electronic device.	Alternate keyboards, key guards, head mouse, track ball, touch screen, screen reader, switch with scanning, etc.
	Enabling Technology and Environmental Control Systems or devices which increase access and independence in homes, schools, businesses, community buildings, etc. as well as assist in controlling other environmental needs.	Ramps, door openers, lifts, switch, or electronic controls of the environment, such as lighting, temperature, etc.
	Supports for Low Vision Low tech or high-tech equipment to aid access to printed materials, projected information, the white board, and/or the teacher during instruction.	Magnifier, magnification dome, Mojo, Zoomax Snow, closed caption television (CCTV), monocle, lighted table, high contrast paper or colored overlay, specialized glasses, etc.
Communication	***Assistive Listening Devices and Environmental Aids*** Electronic and non-electronic aids that assist students who are hard of hearing or deaf with accessing information that is typically presented through an auditory modality.	Classroom amplification, personal FM systems, closed captioning systems, and environmental alert systems, etc.
	Augmentative and Alternative Communication (AAC) Methods, aids, and devices (electronic or non-electronic) used to supplement or replace spoken and written language to assist people with expressing their thoughts and ideas.	Picture symbols, object-based communication displays, alphabet boards, speech generating devices, computer-based communication devices, eye gaze, switches, communication boards, and other communication systems, etc.



AT Domain	Definition/Explanation	Examples *(Not an exclusive list)*
Physical	***Fine Motor Tools and Aids*** Tools or aids that provide support, or alternative means of access to produce fine motor tasks such as writing, cutting paper, or stabilizing writing materials.	Weighted pencils, alternate writing instrument, pencil grips, adapted scissors, raised line paper, slant boards; pointers, adapted art supplies, etc.
	Mobility Aids Adaptive equipment or supports to aid independent or supported movement, transitioning (stand to sit), or navigation across a variety of terrains (grass to blacktop).	Canes, crutches, standing devices, prosthetic devices, wheelchairs, gate trainer, walkers, etc.
	Seating and Positioning Aids Supports, medical devices, or specialized equipment designed to provide physical support for safe and secure positioning or seating.	Adapted chair, foam supports, footrest, customized neck braces, tilt and space wheelchair, molded foam seating with secure harness systems, custom seating or position equipment, mats, wedges, etc.
Social Emotional	***Recreation, Leisure, and Play Aids*** Adapted toys, recreation equipment, or play equipment that aids students in active participation in recreation, leisure activities, or play.	Switch activated spinner, electronic dice, adapted sports equipment, soccer balls or kickballs with a beeper, wheelchair accessible swings, playground ramps, etc.
	Transportation Use and Access Aids Adapted equipment, seating, or supports to aid access to and use of personal or public transportation.	Electronic lifts, adapted cars, hand brake and gas pedal, specialized transportation services (access-a-ride), bus route software, safety software, etc.

For questions or more information: ***Call:*** 615.770.1064 | ***Email:*** special.populations@tn.gov

Questions and Answers
Assistive Technology for Students with Disabilities

This document is intended to answer some of the common questions asked by educators and families about assistive technology.

1. ***What is assistive technology (AT)?***

   AT includes devices and/or services. The Individuals with Disabilities Education Act (IDEA) defines assistive technology as "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 functional capabilities of a child with a disability." 20 U.S.C. § 1401(1)(A); 34 C.F.R. § 300.5. The term excludes medical devices that are surgically implanted. 20 U.S.C. § 1401(1)(B); 34 C.F.R. § 300.5. While IDEA uses the term *device,* AT includes a wide range of options, including electronic and non-electronic tools, hardware and software, devices, or equipment.

   AT services means, "any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device." 20 U.S.C. § 1401(2); 34 C.F.R. § 300.6. AT services encompass a broad list of provisions, including but not limited to evaluating, providing for the acquisition of AT devices, designing, fitting, adapting, maintaining, repairing or replacing, and training. For additional information about AT basics, you can read, "What is Assistive Technology?"

2. ***Are there laws that address AT devices and services?***

   Yes, three federal laws address AT. In developing a student's IEP, the IDEA requires a student's IEP team to "consider whether the child needs AT devices and services" to receive a free appropriate public education (FAPE). *See* 34 C.F.R. § 300.324(a)(2)(v). If an AT device or service is necessary for a student with a disability "to make progress in light of the child's circumstances," those devices or services must be included in the student's IEP. U.S. Dept of Educ., *Letter to Anonymous* (Nov. 27, 1991); *Endrew F. v. Douglas Cnty. Sch. Dist.*, 137 S. Ct. 988 (2017).

   If a student with a disability utilizes an AT device or service, both Title II of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act prohibit LEAs from discriminating against the student due to the student's use of AT, even if the use of AT mitigates the effects of the student's disability. *See* 28 C.F.R. § 35.108; 34 C.F.R. § 104.3. State and local governmental entities, including LEAs, must ensure that all programs, services, and activities are accessible to individuals with disabilities.

3. ***Which students should be considered for AT supports or services?***

   Any student with a disability should be considered for AT devices or services if the student is unable to access and participate in an environment, activity, or service that is available to non-disabled students. The provision of AT must be determined by the individualized education program (IEP) or Section 504 Plan team on an individual basis. 34 C.F.R. § 300.324(a)(2)(v). The IEP or 504 Plan team will consider all data to appropriately identify the necessary supports.

4. ***How do I know if my child or student needs AT?***

   Students with a disability may need AT if their disability impacts their ability to fully participate in the educational environment, activities, or services available to their non-disabled peers. As part of the evaluation process, the student's IEP team should assess the student's functional capabilities and determine whether an AT device or service would increase, maintain, or improve those abilities. *See* 34 C.F.R. §§ 300.5; 300.6. The evaluation should provide sufficient information to permit the IEP team to determine whether the student requires an AT device or service to receive FAPE. *See* 34 C.F.R. § 300.105(a). For students with an IEP or a Section 504 Plan, the team must identify all areas of need that may require support with AT. It is possible that an AT evaluation is necessary to identify the most appropriate AT supports and/or services. *See* U.S. Dept. of Educ., *Letter to Fisher* (Dec. 4, 1995).

5. ***If AT is provided to a student, will they become dependent on it and not develop skills they otherwise would have on their own?***

   No. AT provides a method for the student to access an activity or demonstrate a skill that the disability is otherwise preventing the student from performing. In fact, when a student has access to necessary AT, it increases their independence by reducing reliance on another person to assist with a task. AT may also reduce frustration and increase participation in students by providing a means to engage.

   AT can be compared to an individual needing to wear glasses or contacts to be able to access print they otherwise could not read. By wearing glasses or contacts, an individual is not being provided an advantage over unaided individuals who do not require corrective lenses; it is simply leveling the opportunity for people who require prescriptive glasses.

6. ***Are there any prerequisite skills a student must have to be provided AT?***

   No. A student does not have to demonstrate any prerequisite or 'readiness' skills for AT devices and/or services to be provided.

7. ***If I know a student requires AT, does an AT evaluation have to be completed?***

   An AT evaluation is required if the team is unable to accurately identify the appropriate method or device needed for the student to access the activity or material to be able to make progress toward his/her/their educational goals. *See* U.S. Dept. of Educ., *Letter to Fisher* (Dec. 4, 1995). The need for an AT evaluation may also depend in part on the complexity of the student's needs. For example, a team may offer a slant board, specialized pencil grip, or other writing utensils to a student who has fine motor deficits and determine that those supports sufficiently address the writing challenges without the need for an evaluation. Conversely, a student with mobility and communication challenges may require an AT evaluation if the special education and/or related service providers have been unable to successfully identify a reliable access mode for the student without seeking a more formal evaluation.

8. ***Who is responsible for conducting an AT evaluation?***

   Any educational evaluation, including an AT evaluation, should include a multidisciplinary team, including the family. Although medical or private AT evaluations are often completed by a single 'expert', this practice is modified within the education system. Educational evaluations should be conducted

collaboratively by a group of professionals (e.g., special educator, speech-language pathologists, occupational therapist. physical therapist, etc.) and the family to collectively consider the student's strengths and challenges across multiple settings and activities and to determine the student's greatest level of independence and the degree of additional supports required to bridge the gap toward fully accessing his/her/their education.

9. How is an AT device acquired for a student?

If an AT device is necessary for a student with a disability to receive FAPE, the district is obligated to acquire and maintain the device at no cost to the family. *See* U.S. Dept. of Educ., *Letter to Cohen* (July 9, 1992).

Once the area or areas requiring educational access supports have been identified, the IEP team will select a specific tool, system, piece of equipment, or device that will enable the student to fully participate in the identified activity or environment. The local education agency (LEAs) may have a library of AT equipment for student trials and loans, they may need to purchase a new device, or they can access community programs to borrow or acquire equipment for students. Additionally, LEAs may ask families for consent to acquire the AT device through the state-funded healthcare plan or family's private health insurance; however, a family is under no obligation to provide insurance information or consent to the school to seek reimbursement for equipment or services. Depending on the needs of the student and the requirements for specialized devices or equipment, a district may be eligible to seek high-cost reimbursement.

10. Can districts seek funding for necessary AT through Medicaid or private insurance?

Yes, if the AT is deemed necessary by the IEP team, meets the definition of medical necessity, and is deemed a covered device or piece of equipment by the healthcare plan, the school can pursue third-party billing if the family agrees and provides informed consent.

If seeking coverage for an AT device, the school must follow the evaluation and or claim requirements of the healthcare plan, which may require that reports and claims be submitted by a qualified provider according to federal and state provider qualifications.

11. Must a student have an IEP or 504 Plan to receive AT?

Most students' needs can be met with universal access provided through classroom technology, alternate instructional materials, and other assistive tools readily available to all learners in classrooms without the need for an IEP or 504 Plan.

If anyone suspects the child to be a child with a disability, the LEA must consider their child find obligations. *See* 34 C.F.R. § 300.111. The team will then discuss the need for an evaluation for special education or Section 504 Plan eligibility.

12. How do we document the student's need for AT?

The student's AT needs may be documented in a variety of ways and depends in part on the student's disability status.

If a student has an IEP, and the IEP team has determined the need for an AT device and/or service, they must be documented in the IEP. It should first be indicated by selecting 'yes' to the question, "Is AT

necessary?" within the *Considerations of Special Factors* section of the IEP. It may also be addressed in several other places within the IEP, including accommodations, supports for school personnel, present levels of educational performance, measurable annual goals and objectives, the transition plan, special transportation and/or supplementary aids and services. Additionally, it should be documented how the AT will support achievement of IEP goals and progress in the general education curriculum, as well as when the AT will be made available to the student, how it is to be used, and under what circumstances.

For students who are eligible under Section 504, the team will have current assessment data to support the student's need for AT or it may need to be obtained through an AT evaluation.

If a student does not have IEP or Section 504 Plan, the family and a team of professionals will need to meet to discuss the student's needs and whether those needs can be met through universal classroom supports.

13. Should we document a specific model or name of an AT device within the IEP?

Documentation of a specific brand or model in the IEP is appropriate if that a specific model/brand of AT is required to ensure FAPE.

However, there are several reasons it would be more appropriate to describe, rather than name a specific model or brand of AT in the IEP. For instance, the IEP team may still be assessing the student's AT needs through a series of observations and trials and have not yet identified the most appropriate tool, system, or device. Also, some students may encounter new educational settings or go through a rapid period of physical or cognitive growth, requiring that their AT be adjusted, or their needs assessed multiple times within an IEP cycle. Lastly, describing, rather than naming a brand/model will allow the IEP to be implemented without delay if the dedicated AT device or system should need maintenance or repair and require a temporary substitute or alternate.

When providing a description of a tool, system, or device, include any necessary specifications so that a new educator or district would be able to match and implement the program without an interruption to the student's access.

14. Can AT be used during district or state mandated testing?

Yes, if the AT device is deemed necessary to access or respond to the testing materials, is documented in the student's IEP, is regularly utilized by the student in daily instructional activities, and the specific AT is not prohibited during the assessment (e.g., use of a calculator during certain portions of a math assessment). Many AT supports are software, rather than hardware, so the school must consult the Tennessee Comprehensive Accessibility and Accommodations Manual to ensure the accessibility features are properly selected or deselected prior to testing. Assistive technology may also necessitate additional assessment accommodations (e.g., transcribing, etc.), so it is recommended that AT and test accessibility questions be directed to the District Testing Coordinator. Additional information about test accessibility can also be found on the Tennessee Department of Education's webpage.

15. Can AT go home with a student?

Yes. 34 C.F.R. § 300.105(b) specifies that school purchased AT devices may be made available for use in

the child's home or other setting if the AT device is necessary for the student to receive a free and appropriate public education (FAPE). The decision for a device to be made available to the student at home or other setting outside of school is determined by the IEP team and must be based on the student's individual needs and circumstances. It should be documented in the IEP if the team determines that it is appropriate for the child to have AT available in non-school settings.

16. ***How do I know that the AT provided to my child or student is effective, and when should AT be faded or changed?***

    The AT provided to students must be continually monitored to ensure it is meeting the need for which it was selected. School teams and families, if appropriate, should collect data on the child's use of the AT device across settings and relevant activities. If the device or service is not assisting the student in achieving his/her/their education goals, then the team should convene to consider changes to the AT device or service. AT needs will likely change as technology advances and as the student grows and encounters new or different settings and tasks.

17. ***Is it fair and appropriate for students to be provided a type of AT that is not available to other students during instructional times and/or testing?***

    Yes, AT provides students equity, not an extra advantage. AT is determined on a case-by-case basis and is provided to students so they may successfully complete a task or participate in an activity they otherwise would not be able to due to their disability. AT is intended to remove the barrier that prevents the student from accessing the learning task or activity.

18. ***Is AT the same as an accommodation?***

    While accommodations and AT are both designed to provide a student equitable access to education, AT is a tangible device or a specific service delivered to a student with a disability. An accommodation may include AT, but may also be an intangible allowance, such as extended time to complete assignments, scheduled breaks, or reducing the length of an assignment. Certain types of AT and accommodations both may be provided to any student as through universal learning supports offered in the classroom.

19. ***Are there AT supports available outside of my district?***

    Yes. There are many state and national resources available to schools and families to support AT. Additional resources can be found on the Tennessee Department of Education Special Education Instructional Resources webpage.

20. ***Who can I contact with additional questions or more information about the provision of AT in Tennessee schools?***

    Questions or requests for additional information can be directed to the Tennessee Department of Education, Special Education Programming and Intervention team members Alison.Gauld@tn.gov, Autism & Low Incidence Coordinator and Susan.Usery@tn.gov, Speech-Language and Related Services Coordinator.

ASSISTIVE TECHNOLOGY 101

Get informed about assistive technology for your child.

Center on Technology and Disability
www.CTDinstitute.org

fhi360
THE SCIENCE OF IMPROVING LIVES

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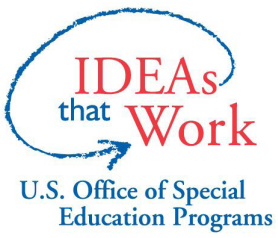
The U.S. Department of Education established the **Center on Technology and Disability (CTD)** to provide a wide range of assistive technology resources for families, teachers, service providers, advocates. researchers, teacher training programs, disability organizations, and vendors.

The CTD website – www.ctdinstitute.org – has a resource library with more than 1,000 assistive technology-related materials; a webinar center with an active schedule of informational presentations, and extensive archive; and a learning center for those who want structured, in-depth modules.



The Center on Technology and Disability is funded by the U.S. Department of Education, Office of Special Education Programs (OSEP) under award #H327F130003 – 13A.

Why Learn about Assistive Technology?

Assistive technology (AT) makes it possible for individuals with disabilities to take part in life's activities, at home, school, work, and in the community. It strengthens developmental, functional, and learning skills. It can substitute for abilities that a person may not be able to develop. For instance, a person may not have use of her voice, but AT can allow her to communicate her thoughts, wants, and needs. No one is too young or too old to benefit from AT.

What Is Assistive Technology?

Assistive technology includes a wide range of tools, from a simple, low-tech device such as a magnifying glass, to a complex, high-tech device, such as a computerized communication system. AT products can be made by hand, purchased off the shelf, or adapted from an existing product.

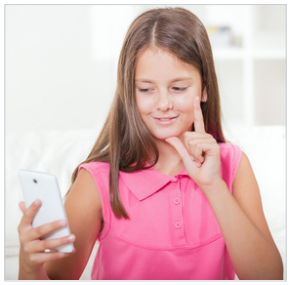
Assistive technology services help individuals acquire and use AT devices. They include, but are not limited to: assessment of an individual's need for specific AT items, "trialing" of potential devices, training for all involved, maintenance of devices, and evaluation of the individual's experience with selected items.

Sometimes an item that is not thought of as assistive technology will fall into the AT category if it permits someone to accomplish a task that he could not successfully complete otherwise. An example would be the use of a calculator in school. For some students, a calculator may provide an easier, faster way of solving a math problem. For students with certain physical and/or intellectual disabilities, the calculator may be essential to their ability to solve the same problem. For those students, the calculator becomes assistive technology and its use may be approved in an Individualized Education Program (IEP).

Meeting Challenges with Assistive Technology

Infants, toddlers, children, and young adults may use assistive technology to help them move, communicate, learn, work, and socialize. In most cases, the AT devices that a person uses will change over time, as s/he grows and develops physically, intellectually, and emotionally. This is particularly the case with young children and youth. AT appropriate for a 3-year old will rarely be suitable for a 7-year old or a 12-year old. It's important, therefore, to regularly evaluate a child's needs and experiences with his or her devices, services, and accommodations.

In thinking about the potential value of AT to a particular child, remember that not all disabilities are identified formally. Many children have "invisible" disabilities which may or may not have been diagnosed by a doctor or service provider. Yet these can have a powerful impact on a child's ability to develop, learn, and socialize with peers and adults. Some of the disabilities that often fall into the "invisible" category are learning disabilities, print disabilities, auditory processing disorders, and emotional/behavioral control.



Children with both diagnosed and undiagnosed disabilities, whether visible or invisible, can benefit from appropriate assistive technology. It is more difficult, however to acquire AT through public agencies, including school systems, without a diagnosis. For children age 0-3, a diagnosis will, in most cases, trigger the development of a Family Individualized Service Program (IFSP); for children and youth age 4-22, the development of an Individualized Education Program (IEP). Federal law–the Individuals with Disabilities Education Act (IDEA)–requires that the IEP process include consideration of a child's need for accommodations, including assistive technology. (Please note that not all accommodations are AT. Non-AT accommodations may include additional time when taking tests, the ability to access a resource room for quiet time, the assignment of a study buddy, or the assignment of easier, modified homework.)

Choosing the Right Assistive Technology for a Child

To determine the assistive technology needs of a child, an AT assessment should be conducted. The assessment can be conducted by the child's school, an independent agency, or an individual consultant. The assessment should take place in the child's customary environments; most often that will be at home or at school.

It is important that the assessment address the child's strengths as well as his or her weaknesses. The perspectives of teachers, parents and service providers are important, as well as that of the child. The discussion should include the ways in which the child communicates, what he or she likes and dislikes, and what kind of strategies and interventions might be helpful. Consider how a child's need for AT might change depending on the environment, for example, in the classroom, on the playground, at a friend's house, or in a public place such as a shopping mall or library. That type of input will provide clues as to what technology might work and how well the child will respond to it.

If an AT assessment is conducted as part of a student's IEP process and it is determined that one or more AT devices and/or software would help achieve the goals identified in the IEP, then the school system is required by law to provide the AT. The school has flexibility in choosing among products that meet the student's needs and the products may be acquired from the school system's equipment re-use inventory, but it must provide the features identified in the AT assessment.

Examples of Assistive Technology to Consider

Examples of assistive technology that support development, communication, learning, play, and independent living include the following:

- Computer apps for tablets and phones can help infants and toddlers with developmental delays learn cause and effect and facial expressions. Used by the child with an adult, such apps provide the type of early intervention that can help narrow or even eliminate a young child's delays.

- Many toys can be easily adapted or purchased off the shelf to be accessible by children with fine or gross motor weaknesses. These include puzzles with knobs, motion toys with big button switches, push or ride-on toys with wheels wrapped in Velcro for stability, and game pieces with handles.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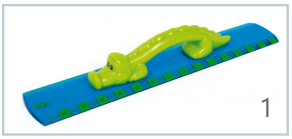
- Learning materials can be similarly adapted. Adding a handle to a ruler, page "fluffers" to books, or 3-D stickers to blocks can help a child independently participate in classroom activities. Timers, task reminders, visual cues, and "first-this-then-that software programs help students make transitions between activities. Audio versions of books are available through a number of sources, including Bookshare and community and school libraries.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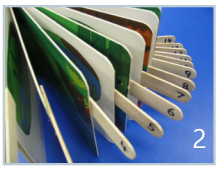
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- For students with learning disabilities, there are a wide range of idea organizers for help in understanding lessons and text content. They also help a student organize his or her thoughts and written assignments. A teacher might allow a student with disabilities to submit an audio or visual report instead of a written essay, using the audio recording or picture-taking functions on their cell phone or tablet computer.


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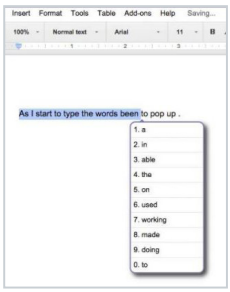
- Other AT tools that are widely available through computers and mobile devices include voice recognition, screen enlargement, and font controls. These are no longer high-price accessibility tools available through specialty catalogues, but are routinely built in to widely available consumer devices. With minimum effort, they can be easily customized to each individual's needs.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- AT items that support mobility and independence include hand-held GPS (global positioning system) devices and apps that help people with visual impairments navigate city streets and use public transportation.

- Assistive technology can also help children, youth, and adults participate in recreational and community activities. Increasingly, communities are investing in accessible playgrounds so that all children can play safely. Adapted equipment allows youth to play such sports as baseball, basketball, and tennis. Accessibly designed movie theaters provide closed captioning and audio description for moviegoers with hearing and visual difficulties.

- Devices to assist a person with "activities of daily living (ADLs)", such as cooking, dressing, and grooming, help individuals of all ages. A medication dispenser with an alarm can be set to remind a child or adult to take daily medication. Talking clocks, scales, and measuring cups help those with visual impairments. Dressing sticks and long-handled brushes encourage independence, as do reaching tools, color-coded labels, and a large variety of mobile apps that provide visual cues to the steps in an activity.


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Learning More about Assistive Technology

You don't have to become a "techie" to help an infant, child, young adult, or adult with disabilities access and use AT. Through websites, YouTube videos, and social media networks, it's easier than ever to not only learn AT basics, but to stay on top of new technology products as they become available. Whether you're someone with a disability, a family member, teacher, service provider, or any concerned individual, you simply need a willingness to invest time to learn and a belief that AT can make the seemingly impossible, possible. There are many organizations that provide AT information and training to consumers, families, and educators, such as parent training and Information centers, state assistive technology programs, disability-specific organizations, and rehabilitation centers. If possible, you should visit an AT center that provides demonstrations and workshops and that may loan devices for users to try.

Please return to the **Center on Technology and Disability's website** regularly to look for new resources. You can also sign up to receive an announcement of upcoming webinars and newly released guides, videos, infographics, and fact sheets. We look forward to seeing you online!

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"Assistive and Instructional Technology Supporting Learners with Disabilities"

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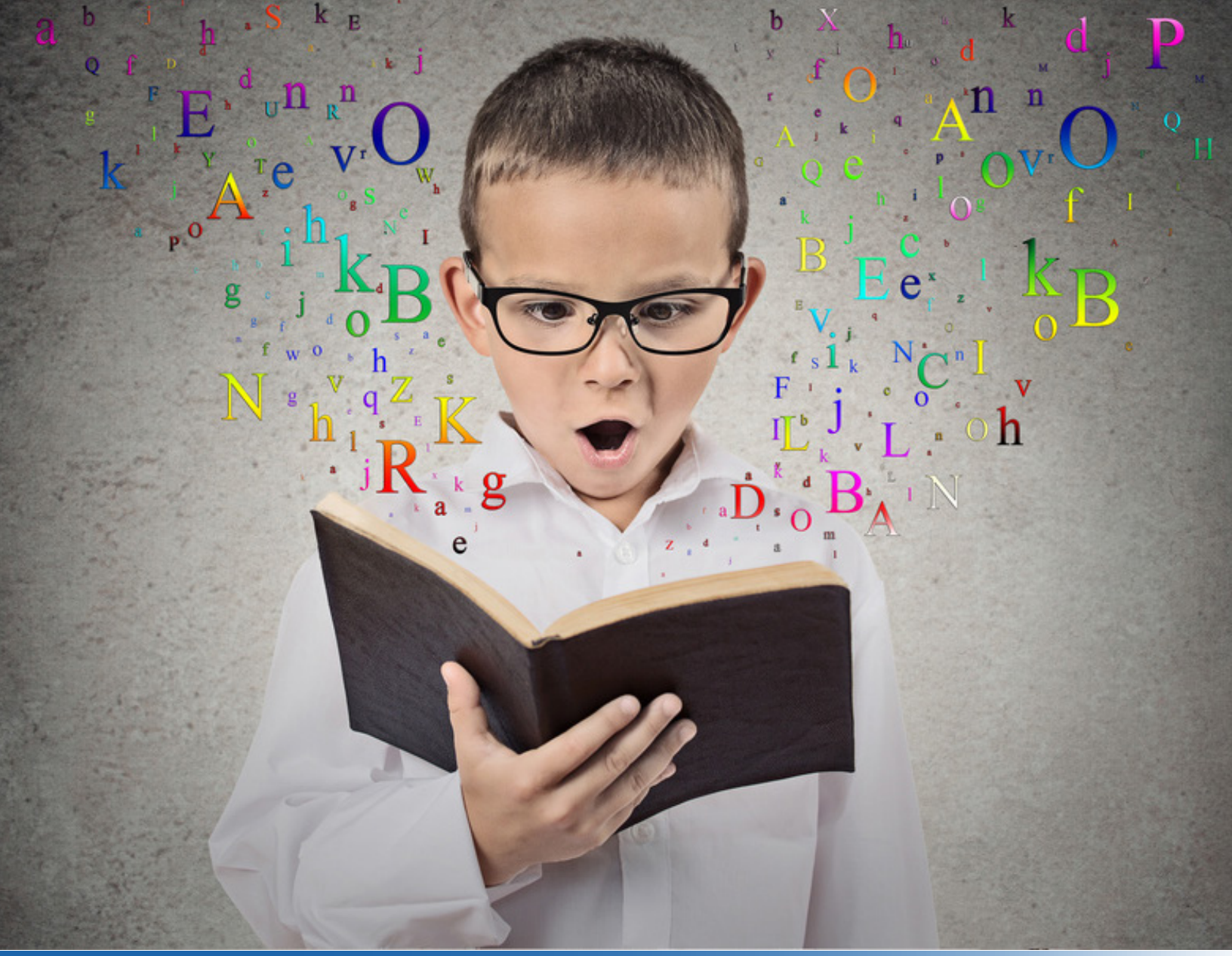

ASSISTIVE TECHNOLOGY GLOSSARY

Center on Technology and Disability
www.CTDinstitute.org

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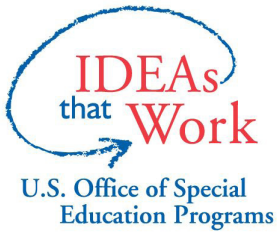
CHAMPIONS FOR CHILDREN WITH DISABILITIES™

The U.S. Department of Education established the **Center on Technology and Disability (CTD)** to provide a wide range of assistive technology resources for families, teachers, service providers, advocates. researchers, teacher training programs, disability organizations, and vendors.

The CTD website – www.ctdinsitute.org – has a resource library with more than 1,000 assistive technology-related materials; a webinar center with an active schedule of informational presentations, and extensive archive; and a learning center for those who want structured, in-depth modules.



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Assistive Technology Glossary

This glossary was created to help parents as they encounter various terms in the areas of special education, disabilities, and assistive technology. It is important for parents and guardians to understand the "language" of assistive technology in order to be informed advocates for their child's technology needs.

A

Access:
The term "access" refers to the ability of any person or group to be able to have full use of a product or device, or full access to a service or environment. With full access to technology and services, people with varying abilities are able to participate successfully in school, at home, in the workplace, and in the community.

Accessibility Features:


Accessibility features are options that allow a user to adjust a technology tool's settings to their personal needs. Common accessibility settings adjust for an individual's visual, mobility, hearing, language, and learning needs. On electronic print materials, font size and color may be changed, along with background color. Other print materials may be produced in large font or in Braille. A computer keyboard may be set to respond to levels of touch. Software can translate difficult words into easier ones or provide definitions throughout the text.

Accessible Design:
Accessible design refers to the intentional designing of tools, services, and spaces to be accessible to everyone, with consideration given to the specific needs of those with cognitive, emotional, or physical disabilities. Examples of accessible design include a website that is compatible with text-to-speech programs or a building that is designed to be fully accessible to a person in a wheelchair.

Accessible Educational Materials (AEM):
Accessible Educational Materials (AEM) are resources used in education that are designed or adapted to be usable by everyone, including those with disabilities. AEM includes textbooks and other learning materials that are offered in alternative formats, such as audio files, large print, Braille, or digital text.

Accommodations:
In education, accommodations allow a student to complete the same assignment, test, or activity as other students, but with a change in timing, formatting, setting, scheduling, or presentation. The material is the same, but a student learns the material in a different way. An example is extended time to complete a test.

Activities of Daily Living (ADL):
Activities of Daily Living (ADL) include basic tasks such as eating, bathing, dressing, getting in and out of a chair or bed, and getting around at home and in the community. Many assistive technology devices are available to help people do a wide range of daily activities. Adapted spoons, weighted bowls, and clothing hooks are examples of low-tech AT. Electronic alerts, wireless controls of appliances, and devices that respond to voice controls are examples of high-tech AT.

Adaptive Technologies:
Adaptive technologies are a type of assistive technology that include customized systems to help individuals move, communicate, and control their environments. These are designed specifically for persons with disabilities and include augmentative and alternative communication devices, powered wheelchairs, and environmental control systems.

Adult Services:
After an individual reaches the age of majority (typically 18), services provided to them are considered adult services. This is significant because the individual will transition from a K-12 school setting with IEP services to receiving services as an adult. Some students may continue in a school-based transition program until they are up to 21 years old. An individual's assistive technology does not automatically go with them when they leave the school setting, and must be considered within the context of adult services which are governed and administered by different laws and agencies.

Age of Majority:
The age of majority is the legal age established under state law at which an individual is no longer considered a minor. In most states, this is 18, and an individual then has the right and responsibility to make their own legal choices as an adult. The parents/guardians of youth with disabilities may apply to delay this transfer of decision-making authority or to retain guardianship of their adult child.

Alternative Access/Input Devices:
Devices in this category allow individuals to control their computers using tools other than a standard keyboard or pointing device, such as a mouse. Examples include alternative keyboards, electronic pointing devices, sip-and-puff systems, wands and sticks, joysticks, and trackballs.

Alternative Keyboards:

Ref. 1

Alternative keyboards are different from standard keyboards in size, shape, layout, or function. For example, the size of the letters on a traditional keyboard may be too small for someone who has a vision impairment but can be replaced with a keyboard that has color contrast and larger letters. The placement of letters may be changed for easier recall by individuals with learning disabilities.

Ambulation Aids:

These devices help people walk and include canes, crutches, and walkers.

American Sign Language (ASL):

American Sign Language (ASL) is a visual language that is communicated with hand and body movements and is used by many people who are deaf or hard of hearing.

Americans with Disabilities Act (ADA):

The Americans with Disabilities Act of 1990 (ADA) prohibits employers from discriminating against people with disabilities and makes such discrimination a civil rights violation. Providers of public services, schools, public buildings and public transportation services also must provide accessibility to people with disabilities.

Android:

Android is a mobile device operating system (OS) used in a wide range of smartphones and tablets. It is the most common mobile operating system in addition to Apple's operating system (iOS).

App (Application):

The term app refers to an application, which is a program created to be used on a computer or mobile device. Apps cover a wide range of categories including learning activities, productivity tools, games, calendars, and organizational tools, many of which can serve as assistive technology.

Architectural Adaptations:

Architectural adaptations are physical changes made in the home, school, workplace, or other areas to make those places more accessible to people with disabilities. Adaptations that remove or reduce physical barriers include ramps, lifts, lighting, altered countertop heights, and widened door frames.

Assistive Listening Device (ALD):
Assistive listening devices (ALDs) are used to aid individuals with hearing impairments to hear more clearly in public situations. The system can be set up to amplify the audio from televisions, radios, doorbells, and PA systems.


Ref. 2

Assistive Technology (AT) Assessment:
This functional evaluation focuses on an individual's need for assistive technology to complete a specific educational, life skill, or vocational task. The evaluation should be conducted in the individual's customary environments by a professional able to recommend a match between the features of an AT device and the individual's strengths and weaknesses. The assessment should include input from the individual, family members, and teachers where appropriate.

Some people use the terms "assessment" and "evaluation" interchangeably, while others use "assessment" to refer to the process that takes place before an individual receives an AT device, and "evaluation" to refer to the process (and document) that identifies how well the device has worked for the individual.

Assistive Technology (AT) Device:
An assistive technology (AT) device is anything that helps someone with a disability do something they otherwise could not do. It helps them to increase, maintain, or improve functioning. It may be purchased commercially off the shelf, modified, or customized. The term does not include a medical device that is surgically implanted, or the replacement of such a device. AT devices range from low tech, such as a pencil grip or magnifying glass to high tech, such as an iPad or electronic communication device.

Assistive Technology (AT) Evaluation: See above.

Assistive Technology (AT) Implementation:
Assistive technology implementation refers to the ways in which selected AT will be put into use. An implementation plan may outline how and when the tool will be used, specific activities it will be used for, and potential training needs.

Assistive Technology (AT) Service:
An assistive technology service is one that directly assists in the selection, buying, designing, fitting, customizing, maintaining, repairing, replacing, and coordinating of assistive technology devices. It also includes the training of students, teachers, therapists, and family members on the use and maintenance of the device.

Audio-Assisted Reading (AAR):
AAR is a technique used to assist or reinforce the reading of printed text with pre-recorded speech.

Audio-Supported Reading (ASR):
ASR is a technique used to increase reading proficiency (speed) of digital text by displaying portions of text simultaneously with synthesized speech. With a variable highlighting feature the user is able to choose the amount of text highlighted in the display (word, sentence, or paragraph).

Augmentative and Alternative Communication (AAC) System:
An AAC system increases or improves the communication abilities of individuals with receptive or expressive language impairments. AAC technology spans a wide range of systems or products, from low-tech to high-tech, including sign language, picture boards, synthesized and digitized speech, mobile apps, and dedicated communication devices.

Ref. 3

Auxiliary Aids and Services:
Auxiliary aids and services assist professionals and organizations to communicate as effectively with people with disabilities as they do with others, which is a requirement under the Americans With Disabilities Act. These may include taped or printed texts, interpreters, or other methods of making materials equally available to everyone, including those with hearing, visual, or manual impairments.

Avatar:
An avatar is a graphic representation of a person or character used in a computer program or video game.

B

Ref. 4

Battery Interrupter:
A battery interrupter allows a user to modify battery-operated devices for switch input. It is placed between the battery and its connection point in the battery compartment which can then be activated by pressing an attached switch.

Braille:
Braille is a raised dot printed language used by many people with visual impairments. Each raised dot arrangement represents a letter or word combination.

Ref. 5

Braille Display:
A braille display is a tactile device consisting of a row of special soft cells covering 6 or 8 pins. The pins of each cell move up and down from electronic input and form a line of refreshable braille text that can be read by touch.

Braille Embossers and Translators:
A braille embosser transfers computer-generated text into embossed braille output. Translation programs convert text that has been either scanned or typed into braille that can be printed on the embosser.

Braille Notetaker:
A braille notetaker is a portable device with a refreshable braille display used by people who are blind or visually impaired. This device is the primary option available for people who want to read and write electronically in braille. Typically a notetaker allows the user to read and write files in a number of formats, listen to media files, handle email, and create voice memos.

C

Captioning:
Captioning is a text transcript of the audio portion of multimedia products, such as movies, television programs and online videos. The captions appear on the screen and are synchronized with the visual events taking place. In addition to its usefulness for those with hearing impairments, it has been shown to be helpful to people with a range of visual and auditory processing problems, as well as those without disabilities.

Cause and Effect:
In the context of education, cause and effect is the understanding that an action causes a reaction. It is a basic concept that children need to learn early in life. Uses of assistive technology for teaching cause and effect include a switch adapted toy that moves or plays music when a child pushes a button, or an iPad game where one action causes another. For example, if a student hits a switch and it makes a sound or animation on the screen they understand that it was their press of the switch that caused it.

Chromebook:
A Chromebook is a basic, less expensive laptop that is used to connect to the internet. It does not use a Windows operating system, but runs on Google's Chrome OS.

Cloud-based:
The term cloud-based refers to applications, services or resources that are stored in the cloud network and accessed via the internet. The cloud is a network of servers that store data that is then accessible from various platforms and devices. Common examples of cloud-based computing are Dropbox, Google Drive, and iCloud.

Community Participation:
Community participation is a functional goal for most individuals with disabilities. To accomplish this goal, young people are encouraged to be interested in and taught how to engage in community-based activities. Assistive technology devices can be an important element in facilitating community participation.

Consideration of Assistive Technology (AT):
The consideration of assistive technology is a required part of the annual IEP process under the Individuals with Disabilities Act (IDEA). Consideration is generally a thoughtful conversation during the IEP meeting about whether a student needs an AT device or service in order to meet their educational goals. The consideration process should take into account the student's strengths, challenges, learning goals, current accommodations, and behavior.

D

Daily Living Aids (DLA):
Daily Living Aids are assistive technology tools that help people with disabilities to be able to do activities such as eating, bathing, cooking or dressing. These aids may be low-tech such as adapted eating utensils or a button hook for dressing, or high-tech such as a voice-activated or smart device that can assist with activities in the home.

Ref. 6

Ref. 7

Descriptive Videos:
Descriptive videos have been enhanced with narration for people with visual impairments. The narration describes visual elements of action, characters, and locations. Examples would include the color of clothing, the movement of characters across a room, or an item being held by a character. These descriptions are inserted into natural pauses in the program's dialogue.

Device Agnostic:
This term refers to the ability of an application to operate across a range of devices without a need for adaptations.

Digital Talking Book (DTB):
A digital talking book is a book that is encoded with recorded audio in human speech. The audio is synchronized with the text and may be accessed by a person with disabilities to increase the quality and availability of information.

Digital Text:
Digital text is any text that can be retrieved and read by a computer or other electronic devices.

Digitized Speech:
Digitized speech, also known as recorded natural speech, is human speech that has been recorded and can be played back. This is one kind of speech that may be used in alternative and augmentative communication devices.

Do-It-Yourself (DIY):
Do-It-Yourself or DIY refers to the method of building, modifying, or repairing things without the direct aid of experts or professionals. DIY solutions can be inexpensive and easy to make, such as using a tennis ball to create a pencil grip or building a writing slant board out of a cardboard box. As 3-D printers become widely available, many in the DIY (or "Maker") community are using them to craft creative AT devices.

Due Process Hearing:
Parents and/or guardians may request a due process hearing if they are unable to resolve differences with a school concerning the special education services, including assistive technology, being provided to their child. A due process hearing is more formal than mediation and the parties are generally represented by attorneys or advocates. An impartial hearing officer hears both sides of the dispute and issues a written decision, which may be followed by an appeal process.

Durable Medical Equipment (DME):

Durable Medical Equipment (DME) is any piece of equipment that is used to serve a medical purpose, lasts for a substantial period of time, and is appropriate for use in the home. DME includes devices, controls, or appliances needed for an individual's medical care, including supplementary supplies and equipment necessary for the proper functioning of such items.

E

e-book:

An e-book is an electronic book that can be accessed and read via a computer or other device. E-books serve as assistive technology when they are used by individuals who could not access their content in other formats, such as print.

Early Intervention Services:

Early intervention services must be provided under the Individuals with Disabilities Education Act (IDEA), which addresses the needs of infants and toddlers with disabilities, from birth to age three. A grant program provides services for identification, assessment, and assistive technology with the outcome detailed in an Individualized Family Service Plan (IFSP).

Electronic Pointing Devices:

Ref. 8

These devices allow an individual to control the cursor and movements on a digital screen and include tools such as a mouse, joystick, and trackball. When used with an on-screen keyboard, electronic pointing devices allow the user to enter text and data.

Emotional and Behavioral Disorder (EBD):

An Emotional and Behavioral Disorder (EBD) is an emotional disability that interferes with a child's educational performance. A child with an EBD displays emotional characteristics such as inappropriate behavior, an inability to relate to others, or pervasive mood problems. Students may be considered for special education services under the EBD category. Assistive technology that can be used to support students with EBD includes tools to help with behavioral control, understanding and expressing feelings, and managing attention.

Environmental Control Unit (ECU):

An ECU enables an individual to control electronic devices in their environment through alternative access methods, such as switch or voice access. ECUs can control things such as lights, televisions, telephones, music players, door openers, security systems, and kitchen appliances. These systems are also referred to as Electronic Aids to Daily Living (EADL).

Ref. 9

Evaluation:

An evaluation is a process in which a team of professionals (e.g., teachers, counselors, and/or service providers) determines whether a child is eligible for early intervention services (birth to three) due to a disability. The evaluation is necessary to determine a child's eligibility for special education and other services.

Every Student Succeeds Act (ESSA):

The ESSA is federal legislation that replaced the No Child Left Behind Act in 2015. It outlines the federal government's role in public education, including the requirement for standardized testing of students in grades 3 to 8.

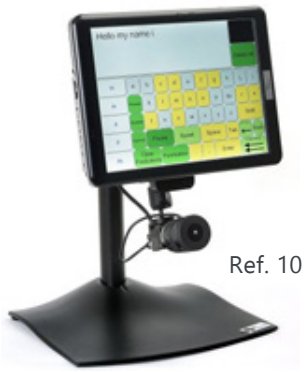
Executive Function:

Executive function is a set of mental skills that help us to control our thinking and behavior. These skills allow us to plan, focus attention, remember instructions, manage our time, self-regulate emotions and thoughts, and complete tasks. These skills are central to doing well in school and at work. Individuals with disabilities may have weak executive function skills which can be supported with assistive technology.

Extension: (web browser)

An extension is an application or program that operates within a web browser. The extension offers additional features or capabilities, such as a spelling and grammar checker that operates within a browser like Google Chrome, Mozilla Firefox, or Safari.

Eye Gaze Board:
An eye gaze board is a simple communication device with letters, numbers, or pictures mounted at strategic areas on the board. The user communicates by looking at select areas translated into words and sentences by a partner.


Ref. 10

Eye Gaze / Eye Tracking Technology:
Eye gaze or eye tracking technology is a way of accessing a computer or communication device by focusing the eyes on a picture or area of the screen. The technology is able to determine exactly where a user is looking and operates as an input alternative to a mouse and keyboard.

F

Family Educational Rights and Privacy Act (FERPA):
FERPA is a federal law that protects the privacy of students and their educational records. Along with IDEA, it protects the rights of students that receive special education services.

Fidgets:
Fidgets are sensory objects or toys that children or adults can use to keep their hands busy in order to aid their ability to pay attention.


Ref. 11

Free and Appropriate Education (FAPE):
FAPE is a requirement outlined in the IDEA law, which states that school systems must provide children with disabilities with special education services and accommodations, including AT, at no cost to the parents. The law does not say what is considered an "appropriate" education, but says that children must be taught in the most typical classroom setting possible, often referred to as the "least restrictive environment."

I

Inclusion/Inclusive:
Inclusion is the principle that people with disabilities should be able to participate in the same activities as their peers who do not have a disability. Examples of important activities to be evaluated for inclusiveness are public education, public transportation, accessing social services, having relationships, and participating in community events.

Inclusive Employment:
This is a category of employment in which a person with disabilities works alongside people without disabilities with no major systemic supports. Assistive technology can be an important factor in helping an individual to function in an integrated employment setting.

Independent Living Centers (ILCs):
Independent living centers are community organizations that offer support services and advocacy for people with disabilities to gain full access to housing, transportation, employment, recreation, and other services. The centers are also important resources for information and training on assistive technology.

Individualized Education Program (IEP):
Every child who receives special education and related services must have an Individualized Education Program (IEP). During the IEP planning process teachers, parents, administrators, support personnel, and students work together to improve educational outcomes for children with disabilities. The IEP process results in a document that includes information on present levels of functioning, future goals, and services to be provided. By law, the IEP process must consider the need for assistive technology to support student learning. If documented in the IEP, schools must provide the identified AT tools and services.

Individualized Family Services Plan (IFSP):
Like an IEP, an IFSP is a written statement about the developmental needs of an infant or toddler (birth to age three) with disabilities. The IFSP outlines developmental status, the family's ability to support learning and development, and desired outcomes for the child. Assistive technology that can support the child's development must be considered. The IFSP describes the services the child will receive, how these will be delivered, and how the child will transition to his next environment.

Individualized Transition Plan (ITP):
The ITP is the section of a student's IEP that focuses on the issues related to the transition from high school to higher education, employment, or independent living. The ITP should identify the child's interests, goals, current educational status, current and projected assistive technology needs, and the steps needed to help the student move from the high school setting to independent living as an adult.

Individuals with Disabilities Education Act (IDEA):
IDEA is federal legislation intended to ensure that all children with disabilities have access to a free appropriate public education (FAPE) with special education and related services that meet their individual needs. IDEA requires that assistive technology be considered during the development of a student's individualized education program (IEP). If AT is determined to be necessary, the school system is responsible for providing the AT device(s) and/or service(s).

Infrared Sender/Receiver:
This device is commonly found in an environmental control unit (ECU). An infrared signal is sent to the control unit, which then sends a signal to the appliance. These are usually small and portable and can be used in different areas of a room.

Integrated Employment:
This is a category of employment in which a person with disabilities works alongside people without disabilities with no major systemic supports. Assistive technology can be an important factor in helping an individual to function in an integrated employment setting.

Internet of Things (IoT):
This term refers to the smart devices that are interconnected via the internet. This offers great potential for automating many daily living activities which can reduce strain for those with disabilities. One example is the Amazon Echo which operates via voice commands.

Interoperability:
This term refers to the ability of a technology device or computer system to connect and function with other types of systems or hardware.

iOS:
iOS is Apple's operating system for mobile devices, such as the iPhone, iPad and iPod.

iPad:
An iPad is Apple's touch screen tablet that is used with a wide range of apps.

iPhone:
An iPhone is Apple's smartphone that operates as a cell phone, camera, mobile web browsing device, and GPS device.

J

Joystick:


Ref. 12

A joystick is an alternate input device connected to a computer that controls the cursor on the screen. It offers an alternative for people with a disability that makes it difficult to use a mouse or keyboard.

K

Keyboard Additions:

Keyboard accessories have been designed to make keyboards more usable for people with disabilities. These include: keyguards (hard plastic covers with holes for each key), moisture guards (thin sheets of plastic that protect keyboards from spills and saliva), and alternative labels which add visual clarity or tactile information to the keys.

Keyboard Emulator:

A keyboard emulator is a device that is connected to or resides in a computer and imitates the computer's keyboard in function and performance.

L

Least Restrictive Environment (LRE):

The phrase 'least restrictive environment' refers to a requirement outlined in the IDEA legislation that states that, to the maximum extent possible, children with disabilities be educated with children who do not have disabilities. Removal from a general educational classroom should occur only when a student cannot be successfully taught in that setting even with assistive aids and services.

Learning Disability (LD):

A learning disability is a broad term referring to a range of learning or processing differences. The skills most often affected are reading, writing, reasoning, and math. Examples of learning disabilities and their associated areas of difficulty are dyslexia (reading), dysgraphia (writing), and dyscalculia (math). Assistive technology is an important consideration for supporting students with learning disabilities.

Learning Management System (LMS):

A learning management system is a software program that a school uses to deliver course material, track assignments, and maintain educational records. They often offer students and their parents the ability to access information online. Examples include Blackboard, Moodle, and Canvas.

M

Mediation:
Mediation is a process to resolve disagreements between parents and school personnel about special education or assistive technology services being provided to a child. It is provided at no cost to the family or the school district. Both parties must agree to mediation. A neutral trained mediator facilitates the meeting to help both parties resolve their disagreements. Mediation is more structured than conciliation but less formal than a due process hearing.

Mobile Device:
A mobile device is a computing device that is small enough to carry with you, often with a touchscreen and wireless access to the Internet, such as a smartphone or tablet.

Mobility and Transportation Aids:
This category of AT includes products that help mobility-impaired persons move within their environment and have independence in personal transportation. These include standing or walking aids, transfer aids, stair lifts, walkers, scooters, wheelchairs, adapted bikes, car seats or beds, stretchers, ramps, strollers, adapted driving controls, and vehicle conversions.

Modifications:
In education, modifications adjust an assignment, test, or activity in a way that changes the standard or alters the original measurement. Modifications change what a student is taught or expected to learn. Examples include a shorter reading assignment or an alternate assessment.

Mouse:
A computer mouse is a pointing device moved by the hand to navigate to items on a computer screen. The buttons on a mouse are used to click on items. A wide variety of adaptations or alternative mice have been developed to address a range of access needs.

O

Online Community Support:
Online community support includes websites, listservs, and other online ways for people to communicate with each other about a topic of mutual interest. An online community can offer both information and support to people who may not able to get together in person, such as people with mobility challenges or busy parents of children with special needs. Some examples include Facebook, Twitter, and blogs.

Onscreen Keyboard:

Onscreen keyboards are software-generated interactive images of a standard or modified keyboard viewed on the computer screen. The keys are selected by a mouse, touch screen, or other electronic pointing device.

Operating System (OS):

An operating system (OS) is the software that manages all the hardware and programs on a computer or mobile device. The OS provides basic device functionality to be able to manage files, install programs, run applications, and interact with the device. Examples of computer operating systems include Microsoft Windows, macOS by Apple, and Linux. The operating systems on most mobile devices are either Android or iOS.

Optical Character Recognition (OCR) and Scanners:

Optical character recognition (OCR) applications work with a scanner or device camera to convert text from a printed page into a digital text file. With OCR, the resulting digital text can be accessed for text-to-speech or edited and saved as a text document.

Ref. 13

P

Personal Assistance Services (PAS):

Personal assistance services help people with disabilities complete daily tasks needed for successful participation in school, work, and community living. They include, but are not limited to, dressing, eating, personal hygiene, shopping, and home/office organization. Assistive technology can play a role as a complement or alternative to the need for personal assistance services.

Ref. 14

Pointing and Typing Aids:

A pointing or typing aid is typically a wand or stick used to make selections on a touch screen, or to strike keys on the keyboard. They are most commonly worn on the head, held in the mouth, strapped to the chin, strapped to the arm/wrist, or held in the hand.

Ref. 15

Portable Word Processor:

A portable word processor is a lightweight, inexpensive device that can offer access to word processing with a keyboard and small screen for viewing text. This can provide a writing tool free of internet distractions. Text can be downloaded from the device to a computer or to a printer for saving and printing.

Positioning Supports:
These devices provide support for people with disabilities to be positioned in a specific way in order to engage in an activity. Examples include positioning rolls, wedges, underarm supports, or specially designed chairs.


Ref. 16

Postsecondary Accommodations:
Postsecondary accommodations in educational settings typically include: 1) modifications to the curriculum or educational tasks in college-level coursework or vocational training, and 2) services or assistive technology tools that help a student better access course material, participate in class, and submit assignments. Postsecondary accommodations in the workplace include equipment and services that help an individual to get and keep a job. They include assistive technology, modifications to tasks, and changes to the workplace environment.

Postsecondary Education and Activities:
Postsecondary education, also called higher education, is formal education that is pursued after completing high school. Examples are vocational programs, community college, four-year college or university, and continuing education. Many colleges and universities have programs designed to support students with special physical, cognitive, and behavioral needs. Postsecondary activities include any formal or informal activities that a child with disabilities pursues after leaving high school. These may include education, employment, recreation, independent living, and community participation.

Promotion of Independence:
This principle advocates for helping people with disabilities to be as independent as possible. Assistive technology can play an important role in this.

Prosthetics and Orthotics:
Prosthetics and orthotics include replacement, substitution or augmentation of missing or impaired body parts with artificial limbs or other orthotic aids. This includes splints, braces, foot orthosis, and more.


Ref. 17

R

Receiving Environment:
The receiving environment is the new setting to which a child with disabilities is transitioning. For example, if a child is going from elementary school to middle school, the middle school is the receiving environment. Planning for the child's transition to a new environment must include a consideration of new assistive technology needs.

Related Services:
Within in the context of special education, related services are any additional support services that a child needs in order to benefit from his or her education. Such services include: transportation, medical evaluation, parent counseling, speech pathology, psychological services, physical and occupational therapy, and recreation.

S

Scan and Read Program:
A scan and read program is software that converts scanned documents into text that can be read aloud and edited. Often additional study tools and supports are provided in this kind of software. This software uses optical character recognition (OCR) technology.

Scanning:
Scanning is an electronic selection technique often used with switch access to choose an item from a group of items. The program highlights the options available to the user, who then selects the desired action or item.

Ref. 18

Screen Enlargement Programs:
Screen enlargement programs magnify an electronic screen, increasing visibility for users with a visual impairment. Most programs have variable magnification levels and some offer text-to-speech options.

Screen Reader:
A screen reader is an application that uses synthesized speech to "speak" graphics and text aloud. This type of application is used by people with a print disability, such as blindness or low vision.

Seating and Positioning Aids:
Seating and positioning aids offer modifications to wheelchairs or other seating systems. They provide greater body stability, upright posture or reduction of pressure on the skin surface. Equipment includes wheelchair cushions, trunk/head supports, modular seating, and seating lifts.

Ref. 19

Section 504 Plan:
Named for Section 504 of the Rehabilitation Act, a part of civil rights law, a 504 plan is an education plan for an individual student, that is an alternative to an IEP. Section 504 regulations require a school district to provide a free appropriate public education (FAPE) to each

qualified student with a disability, regardless of the nature or severity of the disability. For those students that qualify, a 504 plan outlines accommodations and modifications, including assistive technology, needed for the student to receive a free appropriate public education.

Sensory Toys:

Sensory toys are objects that provide tactile or visual input that helps individuals with sensory needs to feel calm, function, and self-regulate in areas such as focus, behavior, and emotion. Some sensory toys are also excellent fidgets which can improve concentration and focus in individuals with attention difficulties. Examples include water beads, squishy balls, and thinking putty.

Sheltered Employment:

Also known as extended employment, sheltered employment takes place in a facility that is dedicated to employing persons with disabilities who need extensive supports in order to work.

Smart Device:

Ref. 20

A smart device is an electronic device that is linked to other devices or the internet through wireless systems such as Wi-Fi, Bluetooth or 4G/3G. Smart devices are used to control or monitor activities, often paired with a mobile app. Examples include smartphones, fitness trackers, biofeedback devices, home automation devices that control outlets or appliances, and voice-activated devices such as the Amazon Echo.

Smartphone:

A smartphone is a cell phone with many capabilities of a computer that is generally connected to other devices or networks via Wi-Fi, Bluetooth, or 4G/3G. A smartphone typically has a touchscreen, internet access, and the ability to run downloaded apps.

Stylus:

A stylus is a pen-shaped tool designed to be used with a touchscreen, such as with a tablet. A stylus can offer greater accuracy than using a finger.

Summary of Performance:

A summary of performance is an overview of a student's academic achievement and functional abilities. It includes recommendations to help the student meet his or her postsecondary goals.

Supported Employment:
Supported employment occurs in a typical work setting where people with severe disabilities receive individualized supports that enable them to become successful members of the workforce. These ongoing support services allow a person to perform a job with assistance that may include a job coach, transportation, assistive technology, specialized job training, or individually tailored supervision.

Switches and Switch Software:
Switches offer an alternative method of providing input to a device or computer when it is not possible to use a standard button, keyboard or mouse. Switches come in various sizes, shapes, and methods of activation. Examples of switches include a large button pressure switch, a lever switch, a squeeze switch, and a proximity switch. Switches can be used to control many devices including adapted toys, communication devices, and computers.

Ref. 21

Synthesized Speech:
Synthesized speech, also known as computerized speech, is a computer programmed voice that attempts to simulate the human voice. There are a variety of different synthetic voice options. Synthesized speech is commonly used in text-to-speech programs, communication devices, and automated speaking systems.

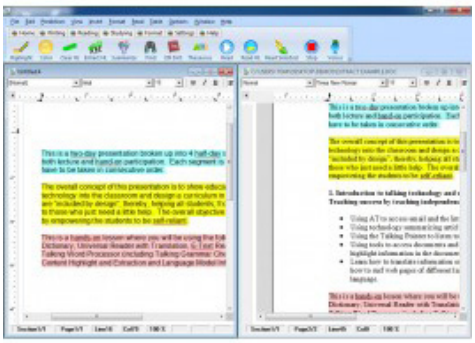
T

Tablet:
A tablet refers to a tablet computer which is a mobile device with a touchscreen display. Examples include Apple's iPad, Window Surface, and Amazon's Kindle Fire.

Talking Word Processors:
Talking word processors are writing applications that provide speech feedback as a student writes. Students often find that having written material read aloud helps them to better edit and understand their writing.

Technical Assistance:
Technical assistance is a set of informational, educational, and related services intended to help an individual or organization build capacity and/or achieve goals.

Text Expansion:



This program feature automatically expands abbreviated words or phrases based on pre-programmed commands entered by the user. The abbreviation expansion allows the user to minimize the number of keystrokes necessary in order to write more efficiently. It can be combined with word prediction programs to aid in the writing process. For example, the key combination "AT" could become "assistive technology".

Text-to-Speech:

Text-to-speech applications speak aloud digital text, including documents, web pages, PDF files, and emails. Developed for individuals with low vision or blindness, text-to-speech can also be useful for people with learning disabilities, such as dyslexia.

Touch Screens:

A touch screen is built into an electronic device, such as a mobile device or computer monitor, and allows direct selection and interaction through a touch or gesture on the screen.

Trackball Mouse:

Ref. 22

A trackball is an alternative mouse with a sphere or ball that is rotated by the fingers to move the cursor on the screen. A trackball can have ergonomic benefits or be more accessible as it is controlled by finger movement rather than hand and arm movement.

Trackpad:

Ref. 23

A trackpad or touchpad is an electronic pointing device with a flat area that senses touch and is used to interact with a computer screen. It is often used as an alternative to a mouse, especially on laptops.

Transition:

Generally, transition describes a process of major change from one set of circumstances to another. For children with disabilities, transitions represent an important time to consider assistive technology that may be needed in their new setting. Significant transitions occur when a child moves from early childhood settings (e.g., home or daycare) to school and, later, between school phases (e.g., middle school to high school) or from secondary school to post-secondary education, work and/or community living.

Transition Services:
In the context of an IEP, transition services help a student prepare to move from a K-12 school setting to postsecondary environments, including college, vocational training, employment, adult services, and independent living. Transition services should also include consideration of and planning for accommodations and assistive technology that may be needed at school or in the work place.

Traumatic Brain Injury (TBI):
A traumatic brain injury occurs when a bump or blow to the head causes damage to the brain. A TBI may result in a disability with cognitive, emotional, sensory, and motor impairments.

TTY (TeleTYpe)/TDD (Telecommunications Device for the Deaf):
This is a telecommunications device for people who are deaf. TTY/TTD is a device with a keyboard that sends and receives typed messages over a telephone line.

U

Universal Design (UD):
This is an approach to the design of products and environments that is aimed at making them accessible to all people, both those with and without disabilities. Examples of universally designed environments include buildings with ramps, curb cuts, automatic doors, widened doorways, and door levers (rather than knobs).

Universal Design for Learning (UDL):
Universal Design for Learning is the design of instructional materials and activities to be accessible to all individuals regardless of disabilities or learning styles. The goal of UDL is to support the learning goals of individuals with wide differences in their abilities to see, hear, speak, move, read, write, understand English, organize, engage, and remember. UDL involves flexible curricular materials and activities with built-in alternatives for students with differing abilities.

USB (Universal Serial Bus):
A USB is a common interface that enables different devices to connect and share information with each other. Examples include USB ports on personal computers, peripherals such as a mouse or keyboard, and other media devices.

USB Flash Drive: (aka USB stick, thumb drive, jump drive, or USB memory)
A USB flash drive is a small portable memory device that stores files and can be accessed by inserting the device into a USB port on a computer or other device.

V

Ref. 24

Video Conferencing:

Video conferencing allows multiple people to participate in a meeting with shared audio and video. This remote method of communicating with others can be helpful for people with disabilities that may not be able to physically attend a meeting.

Video Modeling:

Video modeling is a visual teaching method in which an individual watches a video of someone modeling a targeted behavior or skill and then imitates the behavior or skill. This method can be helpful for teaching appropriate behavior to individuals with autism spectrum disorders.

Video Phone:

A video phone has a screen that permits users to conduct real-time audio and visual conversations. It is useful for those who use sign language to communicate and for individuals who do not have access to medical and diagnostic personnel.

Ref. 25

Vocal Output Communication Aid (VOCA):

A Voice Output Communication Aid (VOCA) is an electronic device that generates spoken language for individuals who are unable to use natural speech to express their needs and to communicate with others during a conversation. As an AAC system, it is used to supplement or replace speaking for those with speech impairments.

Ref. 26

Vocational Assessment:

There are two types of vocational assessment: functional and ecological. A functional vocational assessment is an evaluation of a person's ability and desire to do a job by observing performance on various tasks in a variety of settings. An ecological vocational assessment focuses on particular employment tasks within a designated job site to determine whether the person with disabilities can perform those specific tasks and if so, with what accommodations or assistive technology supports.

Vocational Rehabilitation (VR):

Vocational rehabilitation services, sometimes referred to as "Voc Rehab," are services provided to individuals with disabilities that help them develop the skills and motivation to find, secure and hold a job. These services are provided by publicly-funded regional vocational rehabilitation agencies. Vocational rehabilitation services help young people with disabilities to make a successful transition from high school to job training or college, employment and independent living. The consideration of ways that assistive technology can help to meet these goals should be a part of this planning process.

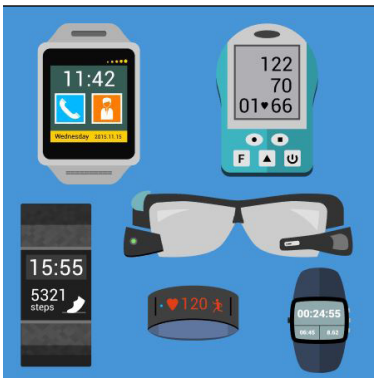
Voice Banking:

Voice banking allows a person to record a set list of sounds and phrases with their own voice, while they still have the ability to use their voice. The recording is then converted digitally to create a personal synthetic voice that can be used in speech-generating devices when they are no longer able to speak. Voice banking is typically used by someone who has been diagnosed with a condition that is known to lead to loss of speech.

Voice Recognition: (aka Speech Recognition)

Voice (or speech) recognition applications allow the user to speak to the device, such as a computer or mobile device, instead of using a keyboard to compose digital text. Some voice recognition applications also provide features to control functions on a computer or mobile device. Voice recognition systems can be used to create text documents such as letters or email, to browse the internet, and to navigate menus, and control applications. Examples include writing by dictation with Dragon Naturally Speaking and speaking commands to Siri on an iPhone.

W



Wearables:
Wearables are clothing and accessories such as watches that incorporate computer technologies that give a user feedback on their actions or allow them to interact with other technologies. Examples include Apple's iWatch, wearable GPS trackers, and a necklace with a personal amplifier.

Web Accessibility:
Universal accessibility to the internet means that all people, regardless of their physical or developmental abilities, have access to web-based information and services. Making web pages accessible is accomplished by designing them to work with adaptive technologies, such as screen readers. It also means making color, font size, and page design decisions that make it possible for the widest range of individuals to access the information.

Word Prediction:
Word prediction applications allow the user to select a desired word from an on-screen list located in a prediction window. The application generates a list of predicted words based on the letter(s) a user enters; continuously changing the list as new letters are entered. The word may then be selected from the list and inserted into the text by typing a number, clicking the mouse, scanning with a switch, or touching the touchscreen. This feature can be beneficial for students with learning disabilities or fine motor impairments.

X

X-10:
X-10 is a communication protocol that allows compatible electronic devices to transmit or receive signals using the existing electrical wiring in one's home. Most X-10 compatible units are inexpensive and, because they use existing wiring, do not require costly rewiring. X-10 technology is used for standard devices such as light switches or motion sensors, and is also being used for some smart home automation devices. Newer X-10 devices may be based on wireless communications.

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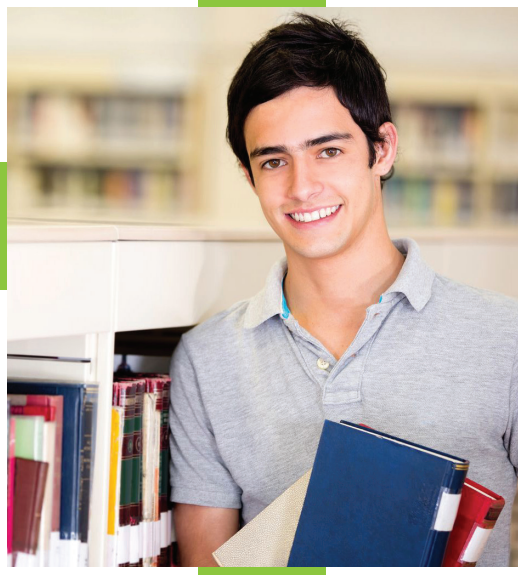
Getting Started: Exploring Assistive Technology (AT) With Your Teen or Young Adult



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Assistive and Instructional Technology Supporting Learners with Disabilities

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Assistive technology (AT) helps teens and young adults work and study in a more personalized way. Because each person's needs are different, finding the right AT often means your son or daughter will try different options before finding the right one. This process of discovering and experimenting with AT is often referred to as trying* assistive technology.

Trying assistive technology helps the school see how your teen will benefit from using a given tool. This guide will help you work with your teen and supporting professionals to discover which technologies work best. To identify how AT can assist with specific skill areas, consult the accompanying document, "Involving Your Teen and Young Adult in Selecting Assistive Technology."

Devin's Story

Devin, a ninth grader with many friends and interests, is excited to be starting high school. His family is excited too, but are also concerned about the longer and more complex writing assignments he'll be expected to complete. Devin's sensory processing disorder makes handwriting difficult, and he can be distracted while trying to take notes or organize his ideas.

During an Individualized Education Program (IEP) meeting, a team member suggested assistive technology might help Devin with his writing. His teachers agreed that it would be helpful, as Devin often struggles to keep up with note taking in class and doesn't write as much as he knows about a topic in longer written assignments.

Devin and his family met with the IEP team and discussed their interest in having Devin use online speech-to-text and audio recording technology. The team arranged a meeting with the school's AT specialist, and Devin and his family learned how to use the AT tools.

After Devin began to use the technology at home for book reports and other writing assignments, he decided that the technology would be useful for tests with essay questions and short answers. His teachers worked with the IEP team and agreed to experiment with the technology during some upcoming tests. Devin was allowed to use a spare laptop in a quiet room and speak his sentences aloud, while the software converted them to text.

Assistive technology (AT) helps teens and young adults work and study in a more personalized way.

** Schools may use the terms "trialing," "trying," or "consideration of" when discussing this process of experimenting with AT.*

At the next IEP team meeting, Devin's parents asked his teachers about improvements to Devin's writing. They were happy to learn that Devin was providing much longer, more comprehensive answers when using the software. His teachers also noted an increase in Devin's participation in class now that note taking was less of a struggle. To ensure that Devin would have consistent access to the tools, his team wrote speech-to-text software and audio recording apps as technology that he needed in his IEP. Devin is now able to use this helpful technology in all of his classes today and in the future.

Incorporate AT into an IEP or 504 Plan and Discover Resources for Trying AT

Step 1: Help your son or daughter learn about the importance of AT and why it may help

- Let your teen know that their opinion and participation is the most important part of the process.
- Ask for your teen's opinion about assistive technology they have previously used. If they're new to AT, ask how they feel about trying it.
- Let your teen know that AT can make school and life easier, allowing them to utilize their skills in the way that works best. AT is often a part of, or looks just like, the technology used by others.
- Let your son or daughter know that the decision to use technology is theirs, but that it can be an exciting and positive experience for them.
- Help your teen understand self-advocacy, the ability to respectfully speak up for oneself and their needs. Explain that they will become their own advocate by helping to select the right AT for themselves. Example: "I would like to use a computer to complete this assignment as my learning disability makes it hard for me to write what I know with paper and pencil."

Let your teen know that while you're working with them to find the right AT, their opinion and participation is the most important part of the process.

Step 2: Inform your son's or daughter's IEP or 504 team that you and your teen are interested in exploring and trying assistive technology

- Ask that someone who's knowledgeable about assistive technology attend your teen's IEP meeting. According to the Individuals with Disabilities Education Act (IDEA) assistive technology must be considered for all students with disabilities. AT should be discussed annually and matching technology to a student's needs is a team conversation.
- Specify in the IEP or 504 Plan which of your student's skills and tasks you would like assistive technology to address.
- Discuss with your IEP team what successful use of assistive technology would mean for a given skill or task. For example, if your teen is looking for software to assist with spelling, ask their teacher to estimate how often your teen misspells words in a typical assignment and what would be a significant improvement. Reaching consensus about what constitutes successful use of assistive technology helps ensure that AT is incorporated in the IEP.
- List the types of technology or the features you are interested in exploring. There is no need to list specific products. For example, writing "apps to assist with reading textbooks" is a good idea and helps you keep your options open.
- Decide with your IEP team who the point person will be for your teen's exploration of AT. Having a point person helps make sure that the AT is being used and progress is being made.
- Ask IEP team members what accommodations need to be made so that your son or daughter has an opportunity to try appropriate types of AT.
- Consider requesting an assistive technology assessment from your student's school or from an appropriate community agency. The request should be in writing. This is especially important if the results of your teen's trying AT are inconclusive. The AT specialist who completes the assessment can individualize recommendations for your student.

Step 3: Coordinate with your student's IEP point person to discover available assistive technology, including borrowing policies

- Schools may have assistive technology for your teen to try. If not, they may be able to access community AT loan programs to borrow assistive technology.

Ask that someone with knowledge about assistive technology attend your teen's IEP meeting.

- States may have community resources to connect you with assistive technology available for loan. Visit the Association of Assistive Technology Act Programs website for more information at **ataporg.org/programs**.

Explore Assistive Technology

Step 4: Gain knowledge of the AT tool being tried

- Learn the basics of a specific tool. Ask the specialists who are lending the tool to demonstrate it and provide available instructional materials. Ask questions so that you can be a resource for your teen and the school staff.
- Visit the manufacturer's website to view videos and download an instruction manual.
- Have the point person from your IEP team demonstrate the tool for you and your teen. This will make it easier to communicate about the tool and its impact.

Step 5: Create a plan for trying assistive technology supports

- Concentrate on a few pieces of technology at a time to determine their effectiveness.
- Ask your son or daughter which technology they are most excited to try first, and see if they have any ideas of when and where these tools would be most helpful. It is important for the teen to be involved in these decisions.
- Prioritize skills and tasks with your IEP team, and start with a tool that will first address your teen's greatest needs.
- Brainstorm with the IEP point person a "who, what, when, and where" plan for testing your son's or daughter's technology at school. Ask for suggestions about how a given tool might be used at school, and seek suggestions to have staff support your teen's use of a new tool. If appropriate, share this plan with your IEP point person or teachers.

Ask questions about assistive technology so that you can be a resource for your teen and the school staff.

Step 6: While trying AT, evaluate its impact

- Encourage your teen to keep an open mind when using new AT, and explain why new options are worthwhile.
- Make note of your son's or daughter's feedback about the AT. Ask for specific questions.

- Work with the IEP team to measure how an AT tool helps with a particular skill. Note differences in the quantity, quality and speed of your teen's work.
- Strategize about how to record and share important information when your teen tries assistive technology. Identify what types of information should be noted and shared. Examples include: How AT impacts the quantity and quality of your son's or daughter's work, their emotional or sensory issues, and how long it takes to complete a task. Consider a discussion with the IEP point person midway through the trial period.

Discuss Your Findings with Your IEP Point Person

Step 7: Share your observations, and listen to feedback from your IEP point person

- Discuss observations and data when your teen tries AT, including its usefulness.
- Examine what works. If the AT your teen tried did not meet his or her needs, brainstorm with your IEP point person about other types of tools or features that might benefit your teen.
- Agree on next steps for acquiring needed technology; determine whether the AT will be needed both at home and at school.
- Write the use of helpful AT into your teen's IEP. Include necessary support services.
- Consider asking to experiment more with the AT if you or the point person feel your teen hasn't had enough time with the technology.
- Keep in mind that one assistive technology tool may not provide all the support your son or daughter needs. Use the experience of trying assistive technology to explore with the IEP point person other ways your teen could benefit from AT.

Encourage your teen to keep an open mind when using new AT, and explain why new options are worthwhile.

Resources

- Assistive Technology and the IEP - **http://ctdinstitute.org/sites/default/files/file_attachments/AT-IEP-English2_0.pdf**
- Student-Centered K-12 Assistive Technology Consideration Flow Chart - **PACER.org/stc/pubs/STC-35c.pdf**
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Keep in mind that one assistive technology tool may not provide all the support your son or daughter needs.

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Figure 1

Assistive Technology Consideration Checklist

Student Name:_____ **School:** _____ **Date:** _____

Directions: Use this form to consider the need for assistive technology (AT). If a child requires AT, document AT needs on the IEP.

Part I. Identify any area that is keeping the student from accomplishing IEP goals that reflect his/her abilities, or identify any area where the student is already using AT. →			**Was 1 or more area identified?**
☐ A. Motor Aspects of Writing ☐ B. Computer Access ☐ C. Composing Written Material ☐ D. Communication ☐ E. Reading	☐ F. Learning/Studying ☐ G. Math ☐ H Recreation ☐ I. Activities of Daily Living ☐ J. Mobility	☐ K. Environmental Control ☐ L Positioning and Seating ☐ M Vision ☐ N. Hearing ☐ O. Other: _____	☐ Yes - Go to Part II. ☐ No – Consideration is complete.

Part II. **A List the area(s) identified in Part I. Specify the task(s) the student is unable to do and the environment(s) where that task takes place.** →	**B. Briefly list or describe any special strategies, accommodations or technology already being used.** →	**C. Is the student able to complete tasks at his/her ability with any special strategies, accommodations or technology already being used?**
		☐ Yes - Current strategies are adequate. Consideration is complete. ☐ Yes - The student's current use of AT is adequate. Consideration is complete. Document current use of AT on the IEP. ☐ No - Go to Part III.

Part III. Select one of the following and proceed as described.

☐ AT is required. The IEP team knows the nature and extent of the AT devices/services needed and will address AT in the student's IEP.

☐ AT may be required. The IEP team determines that additional information is needed and will conduct additional AT screening by _____ (date). Record this statement on the IEP.

Comments:

Form completed by:

Adapted from Wisconsin Assistive Technology Initiative (WATI), Miami-Dade County Assistive Technology Procedures, Georgia Project for Assistive Technology, Oregon Technology Access Program and St. Charles Parish Public Schools Consideration forms.

Assistive Technology Consideration Checklist (cont.)

Student Name: _____ **School:** _____ Date: _____

Directions: Use this additional workspace to identify areas of concern for Part II A and B. Return to Part II C to complete the Assistive Technology Consideration Checklist.

Part II. List the area(s) identified in Part I. Specify the task(s) the student is unable to do. →	**Identify the environment(s) where that task takes place.** →	**Briefly list or describe any special strategies, accommodations or technology already being used. Return to Part II C to complete the checklist.**

List of Possible Assistive Technology

Note: This list is provided to assist in the consideration of assistive technology for the development, review or revision of a student's educational program. It provides some tools and strategies that teams may want to investigate as possible technology solutions. This is not a complete list of assistive technology resources and strategies. The educational team should consider additional resources when making decisions for a student's needs.

A. Motor Aspects of Writing

- Accessible Instructional Materials (AIM)
- Pencil or pen with adaptive grip
- Adapted paper (e.g. raised lines, highlighted lines, and so on)
- Slantboard
- Type writer
- Portable word processor
- Computer
- Other:

B. Computer Access

- Accessible Instructional Materials (AIM)
- Keyboard using accessibility options
- Keyguard
- Arm support (e.g. ergonomic support)
- Track ball, track pad, joystick with onscreen keyboard
- Alternate keyboard
- Mouth stick or head pointer with standard or alternate keyboard
- Switch with Morse code
- Switch with scanning
- Voice recognition software
- Word prediction software to reduce keystrokes
- Head mouse or head master/tracer with onscreen keyboard
- Other:

C. Composing Written Material

- Accessible Instructional Materials (AIM)
- Word cards, word book, or word wall
- Pocket dictionary or thesaurus
- Electronic or talking electronic dictionary, thesaurus, or spell checker
- Word processor with spelling and grammar checker
- Talking word processor for multi-sensory typing
- Multimedia software for expression of ideas (assignments)
- Concept mapping and outlining software
- Word processor with word prediction to facilitate spelling and sentence construction
- Voice recognition software
- Other:

D. Communication

- Communication board or book with pictures, objects, letters, or words
- Eye gaze board (Eye gaze communication)
- Simple voice output device
- Voice output device with levels
- Voice output device with dynamic display
- Voice output device with icon sequencing
- Device with speech synthesis for typing

E. Reading

- Accessible Instructional Materials (AIM)
- Changes in text size, spacing, color, or background color
- Use of pictures with text
- Book adapted for page turning (e.g. *page fluffers*, 3-ring binder, cardboard in page protector)
- Talking electronic dictionary to pronounce challenging words
- Flatbed scanner with talking word processor
- Electronic books
- Text to speech software for Web and electronic text
- Concept mapping and outlining software
- Other:

F. Learning and Studying

- Accessible Instructional Materials (AIM)
- Print or picture schedule
- Low-tech aids to find and organize materials (i.e., index tabs, color coded folders, pocket notebooks/binders
- Highlight text (e.g. markers, highlight tape, ruler)
- Software for manipulation of objects or concept development.

List of Possible Assistive Technology

- Software for organization of ideas and studying
- Recorded material (books on tape, taped lectures with number coded index)
- Other:

G. Math

- Accessible Instructional Materials (AIM)
- Abacus or math line
- Calculator, with or without print out
- Talking calculator
- Calculator with large keys or large LCD print out
- On-screen calculator
- Software with templates for math computation (consider adapted input methods)
- Tactile or voice output measuring devices (e.g. clock, ruler)
- Electronic math/concept manipulatives
- Other:

H. Recreation

- Adapted toys and games (e.g. toy with adaptive handle)
- Use of battery interrupter and switch to operate a toy
- Adaptive sporting equipment (e.g. lighted or bell ball, Velcro mitt)
- Universal cuff to hold crayons, markers, or paint brush
- Modified utensils (e.g. rollers, stampers, scissors)
- Ergonomic arm support arm for drawing or painting
- Drawing or graphic program on computer
- Recreational computer games/electronic games
- Music software on computer/adapted tape recorder, etc.
- Other:

I. Activities of Daily Living

- Adaptive eating devices (e.g. foam handle on utensil)
- Adaptive drinking devices (e.g. cup with cut out rim)
- Adaptive dressing equipment (e.g. button hook, reader)
- Other:

J. Mobility

- Walker
- Grab rails
- Manual wheelchair
- Powered mobility toy
- Powered wheelchair with joystick, head switch, or sip/puff controls
- Other:

K. Environmental Contral

- Light switch extension
- Use of electronic control unit and switch to turn on electrical appliances (e.g. radio, fan, blender, and so on)
- Radio or ultrasound remote controlled appliances
- Other:
-

L. Positioning and Seating

- Nonslip surface on chair to prevent slipping
- Bolster, rolled towel, or blocks for feet
- Adapted or alternate chair, side lyer, stander
- Custom fitted wheel chair or insert
- Other:

M. Vision

- Accessible Instructional Materials (AIM)
- Eye glasses
- Magnifier
- Large print books
- Screen magnifier (mounted over screen)
- Screen color contrast
- Screen magnification software
- CCTV (closed circuit television)
- Screen reader
- Braille keyboard and note taker
- Braille translation software
- Other:

N. Hearing

- Hearing aid
- FM System
- Classroom amplification
- Captioning
- Signaling device (e.g. vibrating pager)
- TDD/TTY for phone access
- Screen flash for alert signals on computer
- Other:

Apps for Middle and High School Students with Learning Disabilities

Compiled by Carolann Cormier, MS, CCC-SLP, ATP
and Nicole Natale, MS, CCC-SLP, ATP
CREC-TABS

This handout is meant to be a resource. It is not meant to be exhaustive and is not a suggestion on what apps to buy or download. It is always helpful to review the ratings on apps before purchasing. For review of apps, click on the review button when you are on the app download page in iTunes. If a lite version is available, generally they are free or cheaper, so they can be a way for you to try an app.

Virginia's First iPad http://www.youtube.com/watch?v=ndkIP7ec3O8

iPad Basic

Sleep/Wake/Power Button – When the iPad is on press once to go to sleep and once to wake up. To power off hold for a few seconds until the power off slide comes on

B

Sound Mute Button – This will mute alerts from apps, email or calendar.

C

Volume Up/Down Buttons - Press up to increase and down to decrease volume. There is no mute button

D

Home Button – This is the short cut out of a program and back to the main page. This will also wake up the iPad. If you push it 2 times the multitask feature will come up!

E

Dock Connector – This is where you plug in the charger. It can also be used for any accessories.

F

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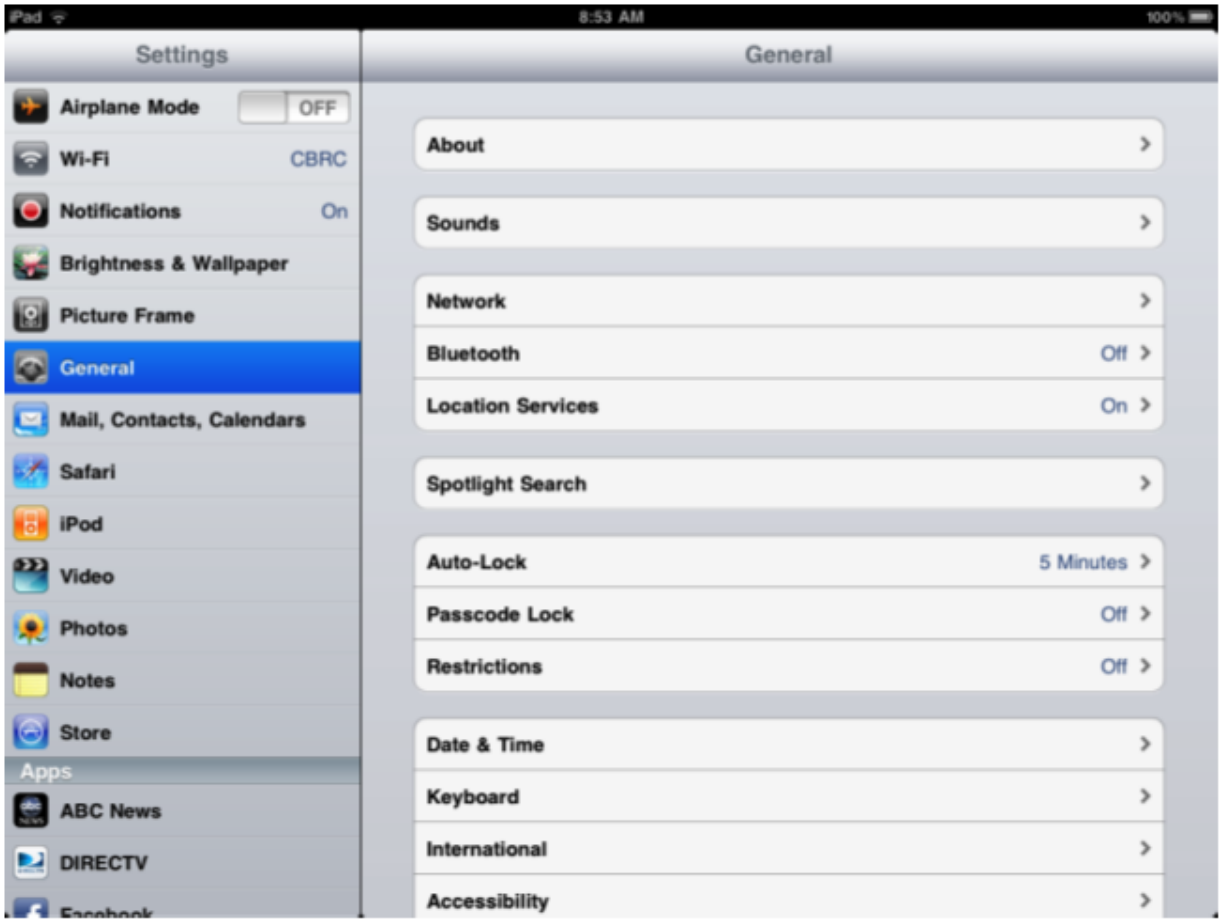
Headphone Jack – This is a standard 3.5mm audio jack. You can use it with headphones or speakers. If you plug in headphones with a built in microphone the iPad will sense it and allow you to use it for apps with audio recording capabilities.
G
Microphone – The iPad has an internal microphone you can use to record audio with any app that supports audio recording.
H
Built in Speaker – This will play anything that makes noise on your iPad, including music or a video's audio track. It plays all audio in mono as it has one speaker.

To **create folders** drag one application on top of another and name the folder. On the iPad you can have up to 20 apps in a folder, allowing many more apps to be loaded onto the device. You can also use folders on the iPhone and iTouch. It can also be done on the computer while you are syncing your device, by going to the list of your apps and dragging apps on top of each other. You will see thumbnails of each app in the folders. A great way to organize your apps.

To take **screen shots** of your various displays on your devices, press the "home" and "sleep" keys at the same time. The screen shot will be saved in your photos and can be emailed or used in presentations.

Settings



To **restrict access to WIFI on the iPad** (with OS 4.2 onward), go to Settings>General>Restrictions

and then Enable Restrictions. You then set a passcode. You now have the option of not allowing access to Safari, YouTube, iTunes, and Installing and deleting Apps. If you choose to restrict these apps, they will not even appear on the device. You can also set Content ratings for Music, Movies, TV Shows, Apps, etc.

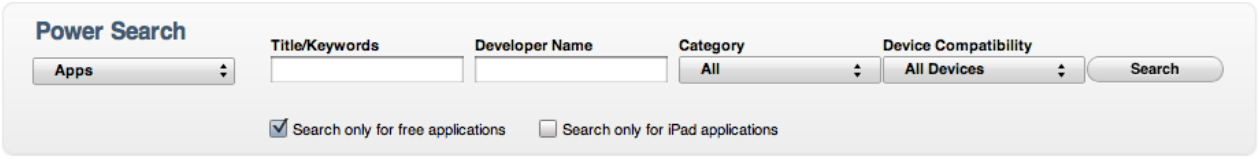
iTunes

For children's apps click on the Apps for Kids category in iTunes sidebar. For books, click on the Books category. Use the search parameters built into iTunes for apps by clicking on the apps button when your search results come up.

iTunes now has a **Special Education Section** as one of the searchable categories in the iTunes sidebar. Included in this category is: communication; hearing; language development; literacy & learning and organization.

FREE APPS:

It was reported that approximately **30% of the apps on iTunes are free**. In iTunes you can do a Power Search to search only for free apps. If you put "Power Search" in the Search Store section in the upper right hand corner of iTunes the Power Search menu pops up. Click on Search only for free applications. You can set this for the category type, as well as apps just for the iPad.



The website **Free App Alert** (http://freeappalert.com/) provides information on free apps. This website is updated on an on-going basis, as apps may only be free for a period of time.

Apple has Education Account Executives that can assist educational systems or educators in purchases or understanding the Education Volume Purchase Program. The representative for Connecticut is Ann Couser Kittredge, , K12 Education Account Executive, Apple Inc. , Chester, CT 06412, 860-501-2976, Fax: 866-758-7704. She reported that there is a discount on volume iPad purchases.

Art & Photography

ArtStudio	($3.99) ArtStudio is a professional drawing/ painting application that also provides photo editing.
iDoodle2Lite	(Free) **A** powerful and fun drawing app that allows you to draw in an array of colors with full alpha support, sketch basic geometric shapes along with the pen and "blob" tool, replay your drawings, undo/redo with a quick half-flip, save images to your library, and much more.
SculptMaster 3D	Using your fingers, create digital sculptures by painting clay like material.
Photo Booth Classic	Take 4 photos to recreate black and white photo strips, then share to your camera roll, Facebook or Twitter.

Assistive Technology & Accessibility

There are accessibility features on the 16 and 32 GB model iTouches only and on the 3rd and 4th Gen.

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iPod Touchs, iPhone 3GS and iPads. These features include voice over, voice control, high contrast mode, mono audio and up to 5x zoom. For more information go to: www.apple.com/accessibility/ and click on the specific tool you would like information on for the accessibility features. Voice Controls – After holding down the home button, speak voice controls to your iPhone 3GS onward, to make calls and play music.

Decibel	($.99) Allows you to know how loud a sound or environment is. Could use for biofeedback for someone to self-monitor or for working on increasing or decreasing volume levels.
Web Reader	($1.99 to 4.99) Web Reader is a text to speech page reader. You can configure web pages to be read as soon as they are loaded, read pages manually after they are loaded, point to where you want to start reading, or use Cut, Copy, and Paste to read only sections of text. You must be at least 17 years old to download this application.
ZoomReader	($19.99) Compatible with iPhone 4 only. Allows you to take a picture of text, and the app will then OCR it and read the text to you.

Books & Reading – Adults and Young Adults

Audiobooks	Download hundreds of classic books arranged alphabetically by author.
Audio Study Notes	($1.99) Various titles, presents chapter summaries professionally narrated with background music, includes context, plot, character development, themes, motif and symbols. No written information.
Classics	Contains the complete text with some illustrations of 22 classic books. You can bookmark where you are in your reading.
Cliff Notes	Available for a variety of the classic books and offers information on the plot, characters and summaries. Lets you create a cram plan.
EngLit	Summaries and reading assistance for many books in English Literature (like Cliff Notes). Each one is a separate app.
eTextbooks	(Free) When connected to the Internet access your eTextbooks to read them and to view, add or edit your notes.
Free Books	($1.99, free on iPad) Thousands of books in different genres, all to download for free
Great Books	The text of over 200 books, that are arranged alphabetically by authors. It uses autoscrolling.
iBaldi	($.99) Watch and listen to Baldi, a 3D animated character who can read you imported text with accurate mouth and face movements and convincing emotions.
Kaeroboy Book 1	($.99) iPad, the tale of a kid with dyslexia who discovers he can read the secret language of superheroes, turning him into one.
LitCharts (Various Titles)	($.99) Study guide that includes side by side summary and analysis and color coordinated theme trackers to follow theme development through the work.
No Fear Shakespeare	(free for a sample, complete books need to be purchased

	individually $.99, or as a complete set $4.99) modern translations side by side with the text. Includes the first scene of 18 plays and all sonnets, character descriptions, plot summaries and a search tool.
PDF Reader Pro PDF Reader Pro for iPad	($0.99 to 3.99) PDF Reader allows you to upload PDF files through WiFi. It also includes a document scanner feature. The iPad version allows you to transfer files to your iPad from your computer or directly from a website. Some of the features PDF Reader Pro Edition for iPad includes are USB file sharing, downloading email attachments, landscape mode with auto rotation, search capabilities, bookmark, password protection, emailing PDF files, WiFi web sharing, document manager, scan option and full web browser.
The Reading Game	($.99) Different users can track their own books and get rewarded every time they read with over 300 rewards to unlock.
Schmoop	Auditory or visual summaries and notes on hundreds of books. Each one is a separate app. (Like Cliff Notes)
Science Books	($3.99) A large collection of complete books in the science domain.
Shakespeare in Bits (Lite versions contain only 2 acts)	(Free to $14.99) An animated study edition of Romeo and Juliet featuring Kate Beckinsale and Michael Sheen. It features the complete original text combines with dynamic text features to increase comprehension. Modern translations for difficult words and phrases can be obtained by touching the words. Study notes, plot summaries and analysis are included.
Video Study Notes	($2.99) Study guides for a number of novels and plays that are required reading at the high school level. Includes graphics, animation, live-action footage and music.
Vook Books	(Prices vary from $1.99 to 6.99)) Various books that have embedded videos and links to wikipedia for the text that is in blue and underlined.

(iBooks, Kindle, and Barnes & Noble all have apps that allow you to make purchases of various books.)

Text to Speech

Easy Speak	($1.99) Text to speech with word and phrase prediction alphabetically based. Word and phrase prediction cannot work at the same time. Can save words and phrases to be used later and can build a favorites page of 4 items.
iMean	($4.99) This application turns the device into a letterboard with large easy- to- read keys and word suggestions with word completion word prediction. Set up in an ABC or a QWERTY format. Can have the sentence read aloud.
iSayIt	($.99) Simple text to speech, phrases or words can be saved and spoken again.
Talk Assist	(free) Simple text to speech, allows you to pull up your history of recent phrases and sentences.
TextExpander	($4.99) Typing and abbreviation expansion, can add and customize your own abbreviations, text can be saved and

	emailed or sent as a text, no speech. Abbreviations can work in certain other apps.

Communication – Expressive & Receptive

iTranslate Plus	Translate words and whole sentences in 52 languages and use text to speech with 43 voices in 16 languages
Pictello	($14.99) Design your own talking story books, social stories etc. Has a wizard, can add in pictures, text to speech or your own voice. Could use to create your own stories.
Rootology	Works on prefixes, suffices and Latin and Greek roots. Contains drills, flashcards and progress reports
SLP Goal Bank	($9.99) Designed to serve as a starting point for SLP's for creating goals for children and adults
SLP Updates	($.99) An information resource for speech language pathologist with dynamically updated information from various sources. Need an internet connection for links pages to work.
Vocabulary Central	Language Arts related vocabulary for grade 6 through 12, Includes various categories, provides auditory feedback on the definition and the word in a sentence.
Word A Day	New vocabulary words are downloaded each day, has an audio component and a cartoon visual. 3 different versions.

Data Collection

Behavior Journal	($9.99) Easily record all behavioral date and sync to the internet portal. Target behaviors can be customized. Has analysis and graphing capabilities.
Behavior Tracker Pro	($29.99) Allows you to record the components of ABC data collection and then analyze the data.
Percentally	($2.99) A tally counter that automatically converts tallies to percentages. Can add and edit folder and tally titles, can create spreadsheets with Google Docs.
Skill Tracker Pro (by the same group that created Behavior Tracker Pro)	($29.99) Automates ABA therapy, allows unlimited clients, observers, video capture and charting/exporting data. Include cold probe for skills and mands, rate of manding and trial by trial data collection.

Math

A Factor Tree	(free) interacting coaching calculator and guide to prime factorization in finding the least common multiple and greatest common divisor.
Algebra: High School and College Math Practice Problems	($9.99) Multiple choice questions, recalibrates based on performance, review questions you missed most, flag specific questions for later review.
AlgebraPrep	($3.99 each) From Pearson 10 different apps, including: Equations, Inequalities and Problem Solving; real numbers; factoring; quadratic equations; graphing; exponents; roots and radicals.

AlgrebraPrep: Practice Final Exam	($7.99) From Pearson, review, practice and prepare for your algebra tests. Take practice tests, get answer feedback and watch instructional videos.
Algebra Pro (iPad only)	($7.99) Interactive workbook with over 100 practice questions and instant "show me" lessons.
Algebra Solver	Solves math formulas and equations and allows you to email them to others.
Easel Algebra Lite – iPad only	(free) interactive hands-on algebra workbooks with instant "show me" lessons.
eSolver HD (iPad)	(free) and iPhone version is available. In this first version only quadratic equations are supported.
FractionTime	($1.99) A simple app for practicing adding, subtracting, multiplying and dividing fractions.
Free Equation Genius	($1.99) Math equation solver for first to third degree equations and with 2 and 3 variables.
Free Graphic Calculator - lite	iPhone and iPad version, scientific calculator and function plotter, can plot cartesian and polar functions
Graphbook	(free) a collection of interactive graphing examples.
Math Drills	($1.99) Drills for adding, subtracting, multiplying, and dividing with number lines, hints and facts.
MathTapper: Estimate Fractions	(free) Made by math teachers to help students make sense of fraction sums and differences.
MathTappers: Multiples	(free) Learn basic facts for multiplication and division, shows displays in various ways for figuring out the answers.
Number Line	(free) a game to help students learn about fractions, decimals and percent by ordering them on a number line.
TimesTables	Works on times tables in different formats including a 12 x 12 grid

Miscellaneous

Dragon Search	(free) Allows you to search the internet based on dictated text.
EZ Read++	($1.99) Allows you to browse the resources of SparkNotes.com for different subjects and formats pages for easy viewing.
Flashcards (free)	Allows you to create your own flashcards for any subject
Howcast	Videos in a variety of categories including arts, media, business, careers, education, crafts, hobbies, kids, sports, technology and many more.
IEP Checklist	(free) Provides a checklist of everything that should be done at an EIP, includes specific language from IDEA and places to keep notes
Presenter Pro	(Free) Helps you refine your presentations skills and change the way you present.
Revision Aid	Design your own tests, they can be multiple choice or a single answer.
Study This!	(free) Helps you keep all your study points for different classes organized and sorted. You can add notes by typing in or using the voice recorder. Each study point is comprised of a name, category, voice tag and write notes section. You can import or

	export whole or selected points and quiz yourself.
Total Study	($.99) Provides material from various sites in an organized fashion. It provides the materials without internet access once it's downloaded.
Translate	Uses google translate to translate text from various languages to various other languages.
Wikipanion	Access to wikipedia

Math – Money Skills

Coin Counting Calculator	Realistic pictures of coins, does not include dollars, has a younger look
Coin Math	($1.99) works on identifying coins, counting coins and learning to make change. It can also be used to learn or reinforce counting by 5's, 10's and 25's.
Money Counting Calculator	Realistic pictures of coins and dollars, has a look like a standard calculator, you touch the coins/bill and the total amount shows on the top display
Pocket Change	Times adding activity using graphics of actual coins

Organization, Prompting and Memory

Bento	($4.99) Helps you organize all the details of your busy life in one application. Manage contacts and coordinate projects. It is the portable version of the popular personal database from FileMaker. Bento for iPad comes with 25 ready to use database templates that can be easily customized to organize virtually any type of information you have.
Corkulous	($4.99) A corkboard where you can map out ideas, brainstorm, store notes, etc. There is a YouTube video with an overview at
Dropbox	Store up to 2 GB of files can access from the web
iHomework (requires OS 10.5 on Mac for syncing)	($1.99) Keep up to date with school work, grades, to-do's, teacher's information and other information in this school organizer. Can set alarms for assignments/tests.
iStudiez Pro	($2.99) Sophisticated student's planner that organizes your schedule and assignments with different ways of organizing them, with puch notifications, summary of current classes and tasks automatically reflected in Today view.
MyHomework	(Free) Allows you to ender you homework by subject or due date. Nice interface, good organizational tool.
NotifyMe 2	($2.99) To-do reminder application that lets users quickly create personal reminders and to-dos with alerts for quick daily and on the go use.
Picture Scheduler	This app shows a visual reminder (photo or video) at a specified time as well as playing a voice note to cue the user.
ReQall	(Free) Remember what is important here and now. It gathers and manages all the tasks you need to do by date, time, locations and keywords, and alerts you at just the right time and place. Save your ideas, to-do lists and things to remember by

	voice or text.
Scheduler	Allows you to create schedules with pictures, text and audio. Alerts are sent to the user at the scheduled times for each activity and will display the programmed prompt.
TextMinder	($1.99) Allows you to schedule SMS text reminders to be sent to you at the times you specify, repeating as often as you choose.
VoCal	($3.99) A Voice Calendar Reminder app that offers repeats, choice of alert tones and voice reminders. Instead of having to type into your device when you need a quick reminder, record a voice message to yourself and have it alert you at the right time.

Science

3D Brain	(Free) Rotate and zoom in on 29 interactive structures. Each structure comes with information on functions, disorders, brain damage, case studies and links to research
Brain Tutor 3D	(Free) 3D images created by MRI. Allows you to interact with the rotatable 3D images
EleMints (Mild EleMints 2 is Free)	A periodic Table, a Plot Graph, Element listing, Electron Diagram and information on each element.
Frog Dissection	($2.99) Virtual dissection including different types of frogs, come dissection tools and instructions. Once dissected, the organs can b further.
Google Earth	(Free) Type in a destination and see the photo narrow in and show you what it looks like from above
GoSkyWatch Planetarium	(free) iPad, easily and quickly identify and locate stars, planets and constellations with a touch or by pointing to the sky.
Life Cycle	($.99) Includes interactive and narrated information on 10 life cycles
NASA	(Free) thousands of images with on demand NASA videos and live streaming, current mission information
Periodic Table of the Elements	(Free) the standard periodic table of the elements where you can select a chemical attribute and have the entire chart color coded to show how the different elements vary with regard to the selected trait.
Planets	(Free) Can touch the planets to learn more about them, spin them and zoom in. Also a popular fidgit tool.
Play Physics	($.99)Interact with dynamic and static objects to clear one level after the next for 50 levels by controlling Alex the astronaut.
Science Friday	(Free) iPad, A weekly science talk show broadcast on NPR.
Science Quiz	Quizzes your knowledge in physics, chemistry, biology, zoology, earth science and inventions.
SkyORB	(Free) A collection of 6 tools including a 3D star map, 3D planetarium, ephemeris, search engine, sun clock and more.
Solar Walk 3D	($2.99) A 3D solar system model that lets you navigate through space and time, learning trajectories, structures etc.
VideoScience	(Free) videos that are 2 to 3 minutes in length and demonstrate the steps of simple science experiments, with little setup time

	and using only low cost materials. Features science teacher Dan Menelly (winner of the Einstein Fellowship).

Social Studies

All Countries	Basic information and a picture of the flag is presented for each country with links to Google, Flikr and Google maps.
HD History of the United State	($.99) Covers a variety of topics including Native Americans, Colonial history, the American Revolution, Bill of Rights, foreign policy, cultural & economic history
History: Maps of World	(free) A collection of high resolution historical maps
Maps	(free) Application that comes pre-installed. It can now be done in the classic, satellite, hybrid (satellite and maps together) and terrain view.
Stack the States	($.99) The states come to life as you learn about them. You learn about the capitals, geography and more as you earn states for your own map.
United States Map Game	(Free) Learn the names and locations of the 50 states with this interactive map quiz.
US Geography by Discover	($6.99) Can learn about the states using multimedia content aligned to national standards.
Westward Expansion	(Free) US History Unit: westward Expansion of the United States in the 1800's.

Writing

100 Words to Make you Sound Smart	($2.99) The entire text of the book is included. The words were chosen by the editors of the American Heritage Dictionary.
ACT & SAT Vocabulary Builder	($2.99) Presents a variety of words for you to learn, customizes your experience automatically.
ACT Spell	($2.99) Allows you to add in your own spelling words, auditory feedback provided. Can adjust number of buttons, button size and background colors.
Audiotorium Notes – with Dropbox	($4.99) Dropbox & TextExpander integration. A way to record, organize, review and share your audio and text notes. You can define your own abbreviations and use audio bookmarks to mark and find important sections of audio later.
Awesome Note Lite (+ todo)	(Free) An innovative note taking application and to-do manager that allows you to combine notes with to-do flexibilities. You can customize its look with themes with different folder icons, colors, fonts, and paper backgrounds. It provides easy- to -use regular notes to notes with multiple photo attachments, To-Do Notes to organize your day, Post-It style quick notes, and the ability to send notes with photo attachments as emails.
Big Quotes	($1.99) Over 1200 quotes from over 600 authors with searchable features.
Dasher	(free) A word prediction program based on letter possibilities controlled by moving a line connecting the letters
Diary	Write in a diary that you can add voice notes or photos, change

	the font and size and email to others.
Dictionary.com	Dictionary that allow you to search for the word using speech to text, need internet connection.
Dictionary!	Easy to use, no fluff dictionary using predictive word search.
Dragon Dictation	Voice recognition that you can then see and edit your text to share on clipboard, SMS and email
Essay Writing Wizard	(lite version available) Provides information and steps for writing various types of essays and revision guidelines.
iThoughts	Can import from and export to MindManager as well as other desktop graphic organizers
Live Notes	Includes an audio component for recording. You can play back the audio and information you wrote. You can tag parts of your audio..
MindBlowing	(Free) Create mind maps that you can insert videos, pictures, audio, colored nodes and text. Email the maps to others.
Mind Notes	($5.99) Way of collecting, organizing and outline your thoughts and ideas as mind maps.
Momento	Provides a quick and easy way to write in a private journal, can connect with popular social web services.
My Writing Nook	Write in portrait or landscape, autosave, word count, dictionary/thesaurus lookup, email documents
Popplet (lite version available) iPad only	($4.99) Mind mapping application to use with word or concept mapping, allows drawing within the app.
Puppet Pals	Allows you to use set scenes and characters recording your own messages to create stories or shows that can be saved. Additional sets and characters can be purchased.
Sentence Builder	($3.99) Use spin wheels to make grammatically correct sentences with attention paid to the connector words, interactive with picture support
Soundnote	($4.99) Create notes synched with audio, easy to use and play back.
Spel It Rite Pro	From two choices, select the correctly spelled word as quickly as possible
SpellBoard	($4.99) Allows you to create spelling quizzes in any language. Enter word, the grade level and the spoken word and you can add the written word and/or spoken phrase. You can share quiz with other SpellBoard users, tracks performance
Sundry Notes (lite version available)	Create notes that can include pictures, audio, tables, symbols, web links, a whiteboard and tables.
Typo	As you type possible words show up in a list. To hear the words you touch them, and to select, you touch them again.
ZenTap	Word prediction with choices displayed on top of the alphabet screen

Appwriter

Apps & Iphone/iTouch website and/or article resources

100 Best Free iPhone Apps for College Students	www.bestuniversities.com/blog/2009/100-best-free-iphone-apps-for-college-students/

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100 Ways to use your iPod to Learn and Study Better	http://oedb.org/library/beginning-online-learning/100-ways-to-use-your-ipod-to-learn-and-study-better
App Management and Syncing Multiple Devices	http://atlaak.wordpress.com/2011/01/30/app-management-syncing-of-multiple-devices/
App Store Volume Purchasing Program Explained	http://learninginhand.com/blog/app-store-volume-purchase-program-explained.html
Comparison of iPad vs netbooks	http://rjcooper.com/ipad-vs-netbook/
From toy to tool: Cell Phones in Learning	http://www.cellphonesinlearning.com/
How to Build a Theft Proof iPhone	http://www.ismashphone.com/2009/05/how-to-build-a-theftproof-iphone.html
I EAR.org – I Education Apps Review – extensive resources listed by various categories from toddlers to college level	http://www.iear.org/
Inov8 – Series of articles called There's an Apps for that, covers different categories	www.inov8-ed.com/category/special-app-for-that/
iPad as an Interactive White Board for $5 or $10	www.speedofcreativity.org/2011/03/24/ipad-as-an-interactive-white-board-for-5-or-10/
iPad as Interactive White Boards YouTube tutorials	www.youtube.com/iupgradetv
iPodject Wiki – an collaborative online community exploring iPods in education.	http://ipodject.pbworks.com/w/page/7434242/FrontPage
iPods in School – Kathy Cothran presents a wealth of ideas on using iPods in schools.	http://ipodsinschool.com/
iPod/iPhone survey of use in education	http://spreadsheets.google.com/viewanalytics?key=txxClseuoXVsupxD6xi13uA
iPodsibilities – a teacher's thoughts on using iPods & iPads in the classroom. Includes extensive links to apps, resources, lesson plans and app reviews.	www.ipodsibilities.com/iPodsibilities/Home.html
iTunesU – free, K-12 schools and colleges are providing students with learning opportunities	Available through iTunes as a free download
Learning in Hand – iPods in educations – information on apps, quick tips to get you started with iTouch & iPad etc.	http://www.learninginhand.com/ipod/index.html
Only the iPad - resources about iPads in the classroom	www.shambles.net/pages/learning/ict/ipad/

Compiled from information obtained from research, iTunes information, references on the QIAT listserve, from information in "iPhone and iPod touch Apps for (Special) Education" written by Eric Sailers, The Spectronics website at www.spectronicsinoz.com/article/iphoneipad-apps-for-aac and the ATIA Webinar "There is an App for That" presented by Dr. Therese Willkomm, Ph.D., OT.

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Fact Sheet:

Assistive Technology

What are Assistive Technology (AT) Devices?

Assistive Technology (AT) Devices are items, pieces of equipment or products which are used to increase, maintain or improve the functional capabilities of students with disabilities. AT devices can be standard "off the shelf" items or modified, or customized to meet the individual needs of the student. Many AT devices are "no tech" or "low tech" and require little accommodation and minimal expense. Some examples of "no or low tech" devices include magnifiers, raised line paper, pencil grips, an adapted cup with large handles, or colored reading filters. These easy to obtain items can help students with visual and physical difficulties be more independent in their school work. There are also many other low tech options that can help students who have other disabilities. AT devices can also be very high-tech. High tech items can be things such as electronic communication aids, screen reading software, or mobility devices. Whatever the technology (no, low or high tech) The need for AT devices should be documented in a student's Individual Education Program (IEP).

What are Assistive Technology (AT) Services?

Assistive Technology (AT) Services are the services that need to be provided so that a child with a disability is able to use an AT Device. Services can include an evaluation to see if AT is needed, acquiring the device, adapting it to the individual needs of the student, coordinating the use of the device and providing necessary training to the student, family and professionals.

The Facts you should know:

- ✓ Students may require more than one type of AT device depending upon their individual needs.
- ✓ AT must be considered during the Individualized Education Program (IEP) process for each student.
- ✓ If an IEP team determines that AT devices are necessary to provide the student a Free Appropriate Public Education (FAPE), the devices and services must be provided at no cost to the family.
- ✓ If an IEP team determines that AT devices are necessary to provide the student FAPE, the devices and services must be documented on his or her IEP.
- ✓ If AT is documented on a student's IEP, the school is responsible for providing the device(s) and/or services and for repairing or replacing it if needed.
- ✓ If an IEP team determines that a student needs AT to participate in district or state testing, the need for AT must be included in his/her IEP.
- ✓ IEP teams are not required to identify a specific name-brand of assistive technology on an IEP.
- ✓ AT devices supplied by the school may be taken home and used in the community if the IEP team determines that it is necessary for the student to receive FAPE.
- ✓ Assistive technology (AT) devices are available in many categories, including:
  - Academic and learning aids – calculators, spell checkers, word processors, computer software, etc.
  - Aids for daily living – devices to help with eating, bathing, cooking, dressing, toileting, etc.
  - Assistive listening devices – amplification devices, close captioning systems, environmental alert systems, etc.
  - Augmentative communication – electronic and non-electronic tools that help students communicate
  - Computer access – modified keyboards, switches, special software, alternative access aids
  - Environmental control – switches, adapted appliances, environmental control units
  - Mobility – wheelchairs, walkers, scooters, and other devices that help the student move around
  - Work – adapted timers and watches, adapted knobs, picture-based instructions for how to do a job, etc.
  - Recreation and leisure – adapted books, switch-operated toys, leisure computer software, etc.
  - Seating and positioning – corner chairs, wedges, prone standers, wedge seats, adapted/alternative chairs, etc.
  - Visual aids – magnifiers, talking calculators, Braille writers, screen reading software, Braille note-taking devices, etc.

Tips for Families:

- ✓ Talk with your child's IEP team if you have questions about assistive technology for your child.
- ✓ Share ideas about items or devices that you may use at home and think could be adapted for the classroom.
- ✓ To get ready for an IEP meeting where assistive technology will be discussed, review the Georgia Project for Assistive Technology's Assistive Technology Consideration Checklist a Assistive Technology Resource Guide .
- ✓T the following questions when preparing to talk about AT with your child's IEP team:
  - What does your child need to do but cannot do because of his/her disability?
  - What are your child's biggest educational challenges?
  - Can your child communicate effectively? Can your child sit, stand, and walk independently? Is your child able to feed himself/herself? Be sure to think about your child's physical, communication, cognitive, social/emotional, and academic strengths and needs.
  - What assistive technology tools are available that might help your child rise above these challenges?
  - Will assistive technology help your child become more independent? Can assistive technology help your child to more fully participate in school?
  - Can your child achieve his or her IEP goals without access to AT?
  - How will we know if the AT has helped your child in his/her educational program?
- ✓ If you think your child could benefit from assistive technology, you can ask the school to evaluate your child's AT needs.
- ✓ You may know what type of device you want your child to use, but it is important to be willing to try out different devices at school and at home, before deciding on one device.
- ✓ As much as possible, include your child in discussions and decisions about assistive technology. Your child may not want to use a device or AT that he/she thinks makes him/her look different from the other students in the class. Ask your child what he/she wants to use.
- ✓ If your child brings his/her AT home, ask the school to have someone show you how to use it.
- ✓ It could happen that you disagree with the IEP team's decision about AT for your child. You could learn that your child's school is not providing the AT devices or services that are written in his/her IEP. If you cannot solve the disagreement or problem informally, you may want to ask for mediation, a due process hearing, or you may file a formal complaint.
- ✓ Remember that your child's AT needs will change as he or she grows.
- ✓ Start preparing for your child's future technology needs in advance!! Think about what technologies your child might need to use beyond school!!

Where to go for more information:

Parent to Parent of Georgia
770 451-5484 or 800-229-2038
www.p2pga.org

Georgia Department of Education, Divisions for Special Education Services and Supports
404 656-3963 or 800-311-3627 and ask to be transferred to Special Education
http://www.gadoe.org/ci_exceptional.aspx

Georgia Project for Assistive Technology
www.gpat.org

Family Center on Technology and Disabilities
www.fctd.info

Additional resources: Contact the **Special Education Director** for your school system.

Assistive Technology for Infants, Toddlers, and Young Children with Disabilities

Research shows that assistive technology (AT) can help young children with disabilities to learn developmental skills.[1] Its use may help infants and toddlers to improve in many areas:

- social skills including sharing and taking turns
- communication skills
- attention span
- fine and gross motor skills
- self confidence and independence

The right type of assistive technology can improve a child's ability to communicate. This in turn may help reduce some negative behaviors. Examples of common assistive technology devices include wheel chairs, computers, computer software, and communication devices.

Q What types of assistive technology devices can infants and toddlers use?

A There are two types of AT devices most commonly used by infants and toddlers–switches and augmentative communication devices.

- There are many types of switches, and they can be used in many different ways. Switches can be used with battery-operated toys to give infants opportunities to play with them. For example, a switch might be attached directly to a stuffed pig. Then, every time an infant touches the toy, it wiggles and snorts. Switches can also be used to turn things off and on. Toddlers can learn to press a switch to turn on a device or to use interactive software.

  Children who have severe disabilities can also use switches. For example, a switch could be placed next to an infant's head so that every time she moved her head to the left a musical mobile hanging overhead would play.
- Augmentative communication materials and devices allow young children who cannot speak to communicate with the world around them. These devices can be simple, such as pointing to a photo on a picture board. Or, they can be more complicated—such as pressing message buttons on a device that activate pre-recorded messages such as "I'm hungry."

Q Why is assistive technology important?

A Many of the skills learned in life begin in infancy: AT can help infants and toddlers with disabilities learn many of these crucial developmental skills. With assistive technology they can often learn the same things that peers without disabilities learn at the same age, only in a different way. Communication skills at this age are especially important since most of what an infant or toddler learns is through interacting with other people. This is especially true with family members and other primary caregivers.

[1] *Research cited in this article is from The Early Childhood Comprehensive Technology System (Project ECCTS) study, funded by the U.S. Department of Education's Office of Special Education Programs, under IDEA's Technology, Demonstration, and Utilization; and Media Services Program.*

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Sometimes parents are reluctant to begin using an AT device. They may believe it will discourage their child from learning important skills. In truth, the opposite may be true. Research has shown that using AT devices, especially augmentative communication devices, may encourage a child to increase communication efforts and skills. The earlier a child is taught to use an AT device, the more easily the child will learn to accept and use it.

Assistive technology is also important because expectations for a child increase as he or she grows. Those around the child learn to say, "This is what the baby can do, with supports," instead of, "This is what the baby can't do." With assistive technology, parents learn that the dreams they had for their child don't necessarily end when he or she is diagnosed with a disability. The dreams may change a little, but they can still come true.

Q How can a family obtain AT devices for their infant or toddler?

A There are two ways. First, infants and toddlers who have a disability may be eligible for early intervention services under Part C of a federal law called the Individuals with Disabilities Education Act (IDEA). If the child meets eligibility criteria for early intervention services, he or she may receive assistive technology devices and services as part of the services provided. The Individualized Family Services Plan (IFSP) team, including the parents, makes the decision whether those services are needed based on assessment information. If so, these services are provided to the child through a written Individualized Family Services Plan, or IFSP.

Some infants and toddlers have delays that are not severe enough for them to be eligible for early intervention services. Many of these infants and toddlers may still benefit from using an AT device. In some cases, private insurance or medical assistance will pay for a device. Or, parents may choose to purchase a device directly for their child.

Many schools and communities have special lending libraries where parents can borrow toys with switches, computer software, and other devices. These libraries, such as the Tech Tots libraries sponsored by United Cerebral Palsy chapters around the country, give parents an opportunity to try various devices before deciding whether to purchase them.

Q If my young child is not eligible for early intervention services under IDEA, how will I know if she could still benefit from using an AT device?

A Asking certain questions may help you make that decision. Some examples:

- Compared to other children of the same age, can my child play with toys independently?
- Can my child communicate effectively?
- How does my child move from place to place?
- Can my child sit, stand, or walk independently?
- Is my child able to feed himself or herself?

If you answer "No" to these questions, then assistive technology may help. In some cases, children with behavior problems actually have a communication impairment. They are frustrated that they cannot tell someone how they feel, and act out instead.

Q What is assistive technology for children who are eligible for early intervention under IDEA?

A IDEA defines an assistive technology device as "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 functional capabilities of a child with a disability." Under IDEA, assistive technology services are any services that directly assist a child with a disability to select, acquire or use a device. AT services include:

- finding and paying for an assistive technology device;

- selecting and making a device work (modifying, customizing, etc.) for a child;
- repairing or replacing a device;
- coordinating and using other therapies or services with AT devices;
- evaluating the needs of a child with a disability, including a functional evaluation in the child's natural learning environment;
- training or technical assistance for a child or that child's family; and
- training or technical assistance for professionals.

Q How does a parent request an AT evaluation under IDEA?

A An AT evaluation should be included as part of an early intervention evaluation if there is reason to believe the child may need an AT device or service. However, parents may request AT evaluation at any time. Parents and family members, such as siblings or grandparents if appropriate, should be involved in the entire process. Families have important information about their infant or toddler. When parents and family members are actively involved it is more likely that the child will get the right device and that it will be used properly.

Q What is the most effective way to evaluate an infant or toddler for an AT device or services?

A Ideally, a multi-disciplinary team will do an AT evaluation. Often this team will include an assistive technology specialist. This person should have a broad understanding about different kinds of technology, adapted toys, learning tools, communication devices and other adapted equipment. A member of the team should also understand how technology may be used in all areas of a child's life to support developmental outcomes. This person should also have knowledge about infant and toddler development. Some early intervention programs have AT specialists on staff. Other programs may use a physical, occupational, or educational speech pathologist that has had additional training as their AT specialist. If an early intervention program does not have a technology expert, it can contract with a provider, a school district, or a community agency.

Before the evaluation takes place, team members should gather information about the child's interests, abilities, and family routines. This will help to determine what type of AT devices might be used during the evaluation. The evaluation is usually done in the environment where the child spends the most time. For infants and toddlers, this may be the family home or a childcare setting.

When the evaluation is finished, the evaluator will recommend any devices or services that will help the child reach the expected outcomes. Any devices recommended should be easy for the family and other caregivers to use.

An important part of the evaluation is its focus on a child's strengths and abilities. For example, if an infant with Cerebral Palsy can only wiggle her left foot, then being able to wiggle that foot is considered a strength. Any AT device should build on this strength. In this case, a switch could be positioned so that every time the infant wiggled her foot a music box would play. Creativity is a must when thinking about AT for children who have significant impairments! Parents and other primary caretakers are great resources.

Q Under IDEA, where can assistive technology devices and services be provided?

A Early intervention services must be provided in natural environments to the extent appropriate. This would include the child's home, childcare setting, or other community settings where children without disabilities are found. It is the responsibility of the IFSP team to determine— based on evaluations and assessments—what services will meet the child's needs. These services, including assistive technology, will be written in the child's IFSP.

As a part of the decision-making process around assistive technology, the team will discuss where AT devices and services will best meet the child's needs (home, childcare, etc.). As children move from one service to

another, everyone involved with the child should know what AT devices the child is using and how to obtain and use them. For example, if a two-and-a-half year old child is receiving early intervention services and will move to preschool at age three, the need for AT should be discussed at the transition planning conference. This will help to ensure that the child's access to assistive technology does not have gaps.

Q Under IDEA, who pays for assistive technology devices and services?

A All early intervention services, including AT devices and services, must be provided at no cost to the family unless a state has established a system of payment for early intervention services.

Q What types of training can be provided under IDEA?

A In general, parents, service providers, childcare providers, and others who work with infants and toddlers and their families should be trained to use the AT device. Training could include:

- basic information about the device, how to set it up, and how it works;
- how the device can be used in all parts of the child's life;
- how to know when something is wrong and how to fix minor problems;
- what to do or where to take the device if there is a major problem; and,
- how to change or adapt the device for a child as he grows or as activities become more complex. Parents and service providers who are trained and comfortable with the device are more likely to find creative ways to use it in all areas of a child's life. The need for training, including who will provide the training, should be included in the child's IFSP.

Q Where can parents get more information about assistive technology or IDEA?

A The portion of IDEA that deals with assistive technology for infants and toddlers is found in 34 Code of Federal Regulations (CFR), part 300 of the regulations implementing IDEA 2004. Other resources are also available:

PACER's Simon Technology Center
Tel: (952) 838-9000; (800) 537-2237
Website: **PACER.org/stc**

ATA—Alliance for Technology Access
ATA is composed of networks of community-based residence centers, developers and vendors, affiliates, and associations.
Tel: (707) 455-4575
E-mail: ATAinfo@ATAccess.org

Closing the Gap
Tel: (507) 248-3294
Website: **closingthegap.com**

Center on Technology and Disability
Tel: (202) 884-8588
E-mail: ctd@fhi360.org
Website: **ctdinstitute.org**

Learning to Communicate: A Timeline for Typical Development

Parents should understand that the following is a guideline to steps in communication development. Individual children's development may vary.

By 3 months, a child usually can

- ☐ coo, cry, vocalize as communication; parent caregiver can interpret child's cues
- ☐ respond to caregiver's speech
- ☐ react when seeing breast or bottle

By 6 months, a child usually can:

- ☐ babble
- ☐ smile and laugh as response
- ☐ turn toward source of normal sound

By 9 months, a child usually can:

- ☐ comprehend "no" and limited other words
- ☐ react when name is spoken

By age 1, a child usually can:

- ☐ speak actual words (may mispronounce)
- ☐ indicate needs and wants through sounds or gestures
- ☐ play games such as "peek-a-boo"

By age 2, a child usually can:

- ☐ sound most consonants and vowels, imitate many words accurately
- ☐ speak clearly at least half the time
- ☐ understand simple commands
- ☐ make eye contact when others speak
- ☐ understand about 300 words and speak in one-to two-word combinations
- ☐ answer "yes" or "no" correctly

By age 3, a child usually can:

- ☐ understand two-step commands
- ☐ understand about 900 words and speak about 200 words clearly
- ☐ use some contractions (don't, can't) and prepositions (in, on)
- ☐ use short, simple sentences
- ☐ ask and answer simple questions
- ☐ use some verb forms in past or future tense

By age 4, a child usually can:

- ☐ understand three-step commands
- ☐ understand up to 2,000 words
- ☐ use sentences of four to seven words
- ☐ use pronouns (you, me, I)
- ☐ tell stories, but may mix fact and fiction

By age 5, a child usually can:

- ☐ understand up to 2,800 words and use up to 2,000
- ☐ use complex sentences
- ☐ tell long stories accurately
- ☐ use most consonants accurately

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Examples of Assistive Technology for Young Children

As parents or professionals, one of the greatest tasks is to help young children develop their own sense of independence and an understanding of the world around them. What many parents or professionals may not know is there are a large number of available tools — collectively known as assistive technology (AT) — that can help young children with disabilities build skills they may be struggling to learn or master. Assistive technology ranges in complexity from simple, low-tech solutions, such as a crayon with a large foam grip, to sophisticated high-tech tools, such as a computerized device that can "speak" the thoughts of someone who struggles to communicate verbally. Assistive technology can help with almost any skill and can be used by children of any age — even infants.

Below are examples of assistive technology that can help with common skills young children learn. Consider the few items listed here as a starting point to explore the countless opportunities AT can offer young children with disabilities.

Daily Routines and Activities

Assistive technology provides many different ways to improve a child's independence by making daily routines and activities easier. Common examples include:

- Attaching **larger grips** to zippers and buttons, making it easier to get dressed
- Displaying simple **picture instructions** for daily routines (such as washing hands) at home (e.g., above the sink in the bathroom)
- Using **bowls with suction cups** to provide increased stability for young children

Social Skills and Behavior

Assistive technology can be a valuable tool for redirecting behavior when a child is unhappy, and for teaching important social skills. Common examples include:

- Reviewing **video models** of other children successfully waiting their turn or listening in order to teach a desired behavior

- A visual **choice board** of different calming activities a child can use when they are feeling upset
- Using a child-friendly timer to alleviate anxiety and create smoother transitions between activities

Sensory

Sensory tools can help increase or decrease stimulation to help a child feel more comfortable and secure in their environment. Common examples include:

- **Noise-blocking headphones** to mute sounds in noisy or over-stimulating environments
- **Fidgets**, small items that a child can hold, provide extra stimulation needed to help children focus
- **Weighted blankets or toys** that provide slight pressure on the body and help some children feel more calm and focused

Fine Motor Skills

Playing with and using everyday toys and objects is an important skill for young children. Assistive technology creates ways to adapt objects so that young children who struggle with gripping, holding, and manipulating objects

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can use them. Examples include:

- Adding **large foam grips** to tools, such as markers, tableware, or toothbrushes, to make them easier to grip and use
- Attaching **grips**, such as shower curtain rings, to toys or bottles so that the items can be more easily grasped and used
- **Cutting one finger off of a glove** to help a child use a touch screen device that requires isolating a single finger

Communication

Between birth and age 5, a child's vocabulary (both words they understand and words they can use) grows at a rapid rate. For children who struggle to communicate verbally, there are many different types of technology that can provide them with their own voice. Common examples include:

- **Apps** for tablets, such as an iPad, that "speak" words a child selects on the screen
- A laminated collection of **words** and corresponding **symbols** a child can point to and indicate their feelings, wants, and needs
- A **single message device**, consisting of a simple button with a built-in speaker. It records a message (e.g., "I'm hungry") and a child can press the button to activate the message for a parent or caregiver

Literacy Skills

From a very young age, children can begin to develop literacy skills — the concept that text is read from left to right, for example, or that writing can be used to create a message for others to read. Assistive technology can help make understanding and practicing these skills easier and more engaging for children with disabilities. Some common examples include:

- Adding tabs, commonly called "**page fluffers,**" to books. This creates more space between pages and makes turning the pages easier for children with fine motor challenges.
- Using **electronic software or apps** to make books more interactive and usable for children who struggle to use or focus on standard print books
- Scribbling and writing with **high-contrast colored paper and pens** so that writing is easier to see for a child with visual impairments

Computer Access

For children who struggle to use a computer or mobile device, there are many different ways to adapt the controls so they are more usable. For example:

- A **"roller ball" mouse** with an oversized trackball, which moves the cursor for a child who struggles to grip and use a standard mouse
- Using simple buttons known as **switches** that a child can select by using their hand, head, or other method, to perform a computer command such as a click, or by typing on a **switch accessible keyboard**
- **Zoom features**, which magnify the screen of a computer or mobile device to make it easier to use for children with low vision

How Do I Start Using AT to Help My Child?

Every child is unique, and the assistive technology each child uses needs to fit their individual situation. With so many options available, exploring assistive technology can sometimes feel overwhelming. Consider seeking advice from someone who has experience using assistive technology with young children. A simple discussion with a knowledgeable professional can provide you with the general information needed to start exploring AT for your child. If your child is under age 3 and has an Individual Family Service Plan (IFSP), talk with your service coordinator about assistive technology for your child. If your child is 3 or older and has an Individualized Education Program (IEP), talk to your case manager about assistive technology for your child. Your IFSP/IEP team can suggest how AT might help, and discuss examples of potential technology to try.

For more information on how to get started exploring AT for your child, read the TIKES' tip sheet, "Explore Assistive Technology and Open New Doors for Your Child" at www.pacer.org/stc/tikes. Assistive technology can make a tremendous difference in the life of your child, and it's up to you to begin exploring the possibilities.

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Introduction to Assistive Technology (AT) for Young Learners

Trainer's Manual





Training materials created by the Technology to Improve Kids' Educational Success (TIKES) Project, a project of PACER Center: PACER.org/stc/tikes

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Introduction to Assistive Technology (AT) for Young Learners

Trainer's Manual

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Introduction for Trainers

This training material was developed in response to a need based on research findings that assistive technology (AT) is underutilized with children ages birth to 5. That same research also shows that AT can have a significant impact in a short amount of time. Designed with input from Technology to Improve Kids' Educational Success (TIKES) participants, it is intended to help early intervention and early childhood professionals build their capacity for assistive technology and leverage this knowledge to improve outcomes for children with disabilities. A solid foundation and understanding of AT is a first step in what for most children with disabilities is a lifelong journey. Technology will grow and change as they do but may always be a part of their life.

Intended Audience: Historically, parents find out about assistive technology from other parents and not their child's teachers. The intended audience for these training materials is early intervention and early childhood special education teachers to present to their peers and to parents of children they work with.

Purpose and Goal of Training: Many families, and the professionals who work with their children, wonder if their son or daughter could benefit from the use of assistive technology. The goal of this session is to help families, caregivers, and professionals understand the breadth and scope of AT available for young children. Participants will learn what assistive technology is, about the continuum of AT from the very simple to the highly complex, and about the categories of AT. They will also explore a variety of assistive technology with your help.

Workshop Objectives:

Participants will learn about the following:

1. Federal definition of assistive technology
2. Role of assistive technology for infants, toddlers, and preschoolers
3. Benefits of assistive technology
4. Myths related to the use of AT by young children with disabilities
5. Research that supports the use of AT with young children
6. Continuum and categories of assistive technology

Supplies Needed for This Training

1. Most sections contain "related resources" that can be provided to attendees in a packet.
2. Presenters will need a computer, LCD projector, a screen, and a variety of assistive technology tools to share with participants.

Evaluations: Participant evaluations are an important component of any training. Please distribute evaluation forms (located in the appendix) and collect these from all participants. Please send summary of evaluations to: PACER Center, TIKES Project, 8161 Normandale Blvd., Minneapolis, MN 55437, or email to TIKES@pacer.org.

References: This training material is based on an extensive review of the literature, as well as existing training tools and educational material on using assistive technology with young children with disabilities.

Tips for Trainers

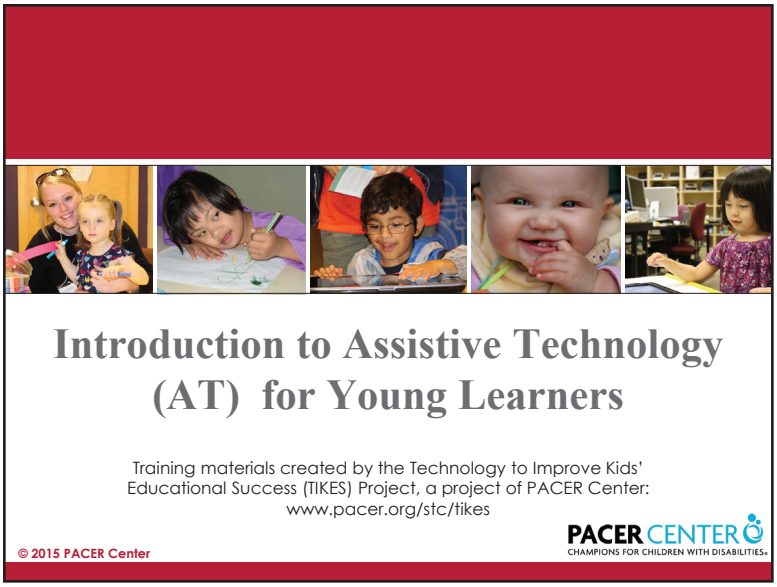
You are the key to making this training a success. Knowing your community and bringing your own experience and stories will make the training engaging and relevant for your peers and the families you work with. This training material is based on extensive review of the literature, as well as existing training tools and education materials designed to provide core topical information based in research and best practice. Focus groups and pilots by TIKES project participants have been conducted to ensure the content is high quality, useful, and relevant.

Tips

1. PowerPoint Slides — These can be edited and revised as you feel necessary to engage your audience. This includes eliminating or adding slides, and using different wording or images.
2. Preparation — Information is provided on each slide as a way to prepare your own remarks and examples for the session. Presenters' notes are not meant to be a script. Feel free to organize or add to these notes as needed.
3. Activities, Stories, and Examples — Use "Related Activities" as a way to structure the activities for your audience. Activities, stories, and examples allow participants to better relate information to their own lives and understand how to apply what they are learning.
4. Information Packets — Use "Related Resources" and handouts found in the appendix of this training material as a starting point to create information packets for participants. Add your own handouts and information on local resources. Packets should include TIKES Workshop Evaluation Form (for use at the end of the training).
5. Translations — Translations are provided of the PowerPoint, TIKES evaluation, and handouts. The slides can be revised as you feel necessary to engage participants. This includes eliminating or adding slides, and using different wording or images. Please contact a member of the TIKES team at PACER to receive the handout as a Word Document that can be edited.

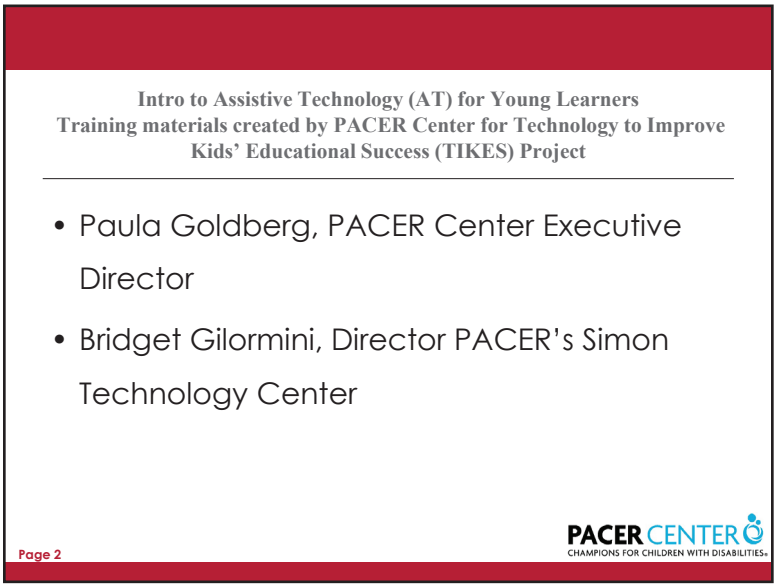
Specific to This Training Material

This training material is intended to be delivered to your peers and parents of children ages birth to 5 with all types of disabilities. The use of assistive technology is based on the child's specific needs and can benefit all ages and all disabilities.



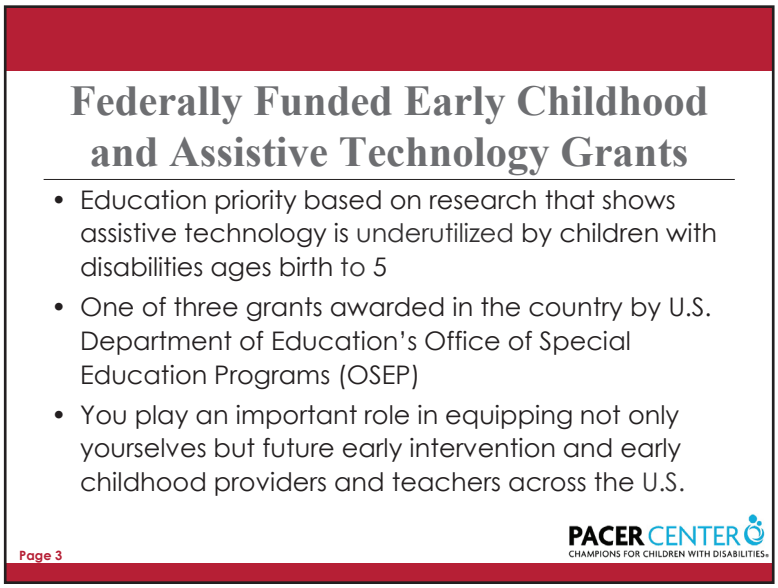
Slide 1: Title Page

Title slide.



Slide 2: Workshop Information

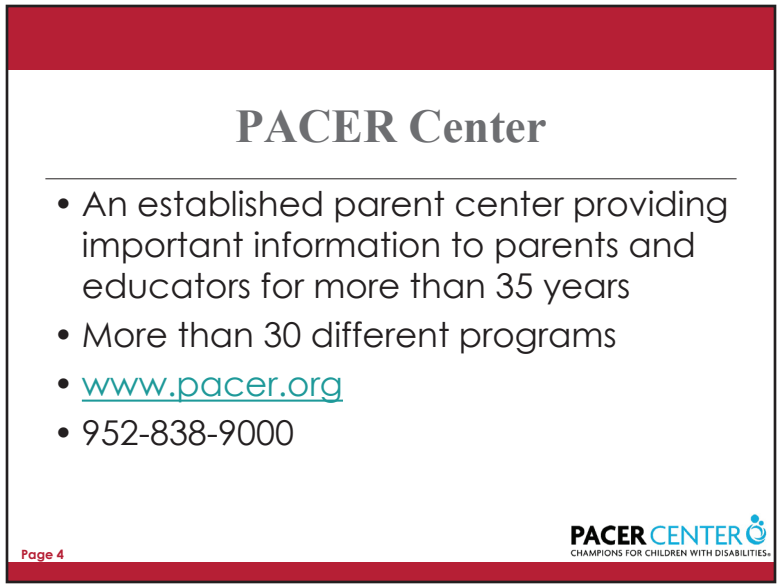
Workshop presenters may wish to insert location, date, and name of presenters on this slide.



Slide 3: Federally Funded Early Childhood and Assistive Technology Grants

PRESENTER NOTES

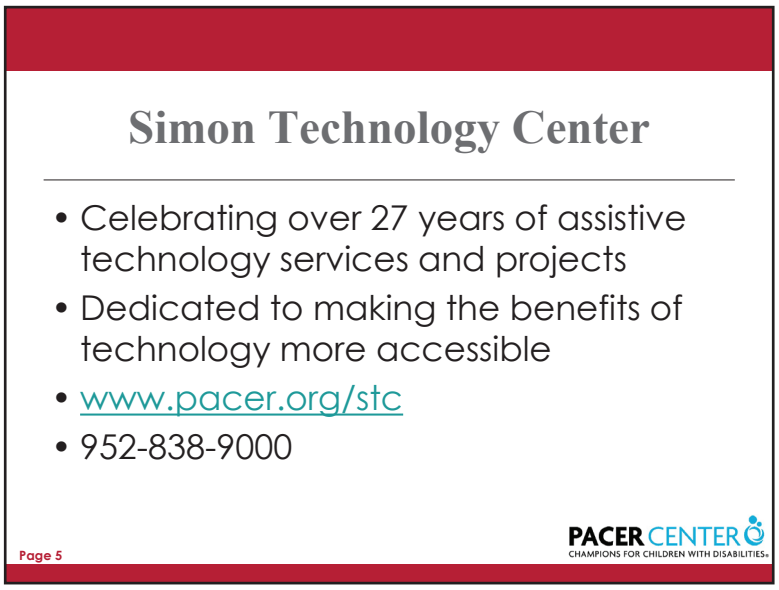
TIKES or Technology to Improve Kids' Educational Success is one of three early childhood and assistive technology model demonstration grants awarded nationally. This education grant is based on a priority to improve outcomes for children with disabilities ages birth to 5 by leveraging the use of assistive technology to bridge developmental and achievement gaps. Research shows that assistive technology is underutilized and under documented for children with disabilities ages birth to 5. The majority of families do not learn about assistive technology from their teachers or providers but from other families. This grant is about developing a model of training materials to equip and support educators and families by increasing their knowledge and awareness of assistive technology and helping them identify appropriate technology solutions for their children or students.



Slide 4: About PACER Center

PRESENTER NOTES

PACER Center is a parent center built on the premise of parents helping parents. For more than 35 years, PACER Center has been helping families advocate for the educational rights of their children. PACER Center also works closely with schools and school districts, educators, and providers to help them understand the parent perspective, provide valuable staff training resources, and offer resources from over 30 different programs that include transition, bullying, juvenile justice, early childhood, state personal development grants, and many more.



Slide 5: About the Simon Technology Center

PRESENTER NOTES

For over 27 years, the knowledgeable staff of the Simon Technology Center have been making the benefits of assistive technology accessible to families, educators, and consumers. The STC does this through a variety of core services and assistive technology projects that include free assistive technology explorations with families and their children, information and referral services, workshops, and a vast AT lending library to support the exploration of assistive technology.

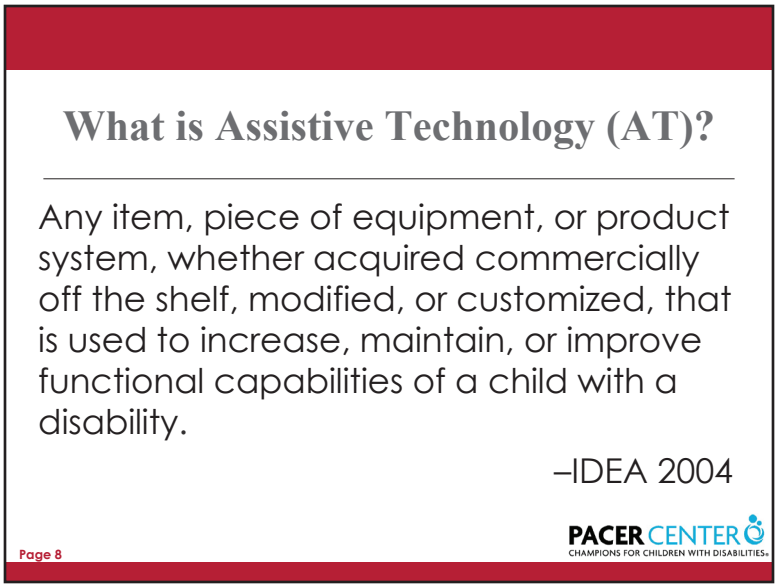
Slide 6: Session Agenda

PRESENTER NOTES

"An Introduction to Assistive Technology for Young Learners" is a workshop designed to help educators and families learn about and use assistive technology to help young children develop, learn, and grow.

Assistive technology is a broad category of specialized technology that helps learners of all ages do something that without this technology they could not do. For young learners, introducing assistive technology can be very powerful in helping them to participate in their daily routines and activities at home, at school, and in the community. Today we will be giving you an overview of assistive technology. We will talk about the continuum and categories of assistive technology. We'll spend some time trying a variety of technology as we introduce each category. It is also important to know what the research says about assistive technology. We will share some articles you may be interested in reading and summarize some of the findings.

Slide 7: Session Agenda, continued



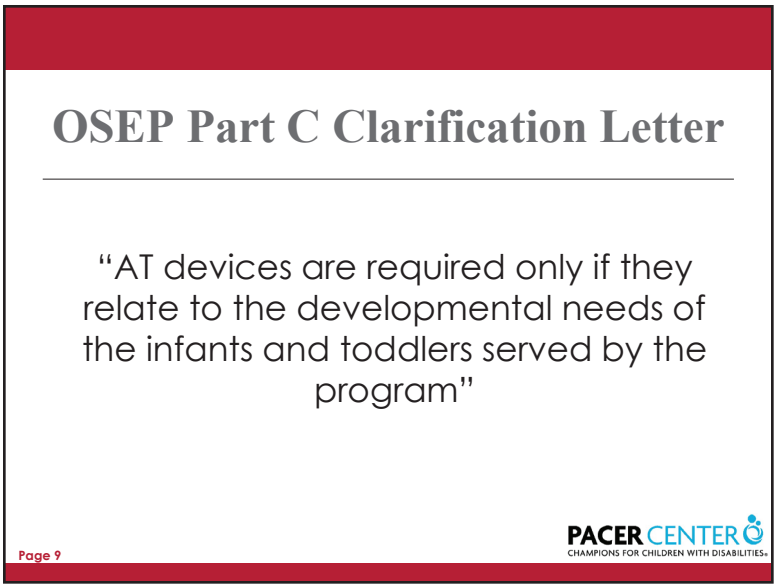
Slide 8: What is Assistive Technology (AT)?

PRESENTER NOTES

Assistive technology devices and services were first defined in federal law in the Individuals with Disabilities Education Act of 1990. These definitions remained unchanged until 2004 with the passage of the Individuals with Disabilities Education Improvement Act when the definition of an assistive technology device was added to clarify what a school system's responsibility is regarding surgically implanted technology such as cochlear implants.

RELATED ACTIVITY OR QUESTIONS

- How does this definition challenge or confirm participants' ideas about assistive technology?
- Based on this definition, do participants feel that they are active users of assistive technology?



Slide 9: OSEP Part C Clarification Letter

PRESENTER NOTES

Further, "linking the provision of those devices to an education benefit is not appropriate under a program that serves children from birth to age three."

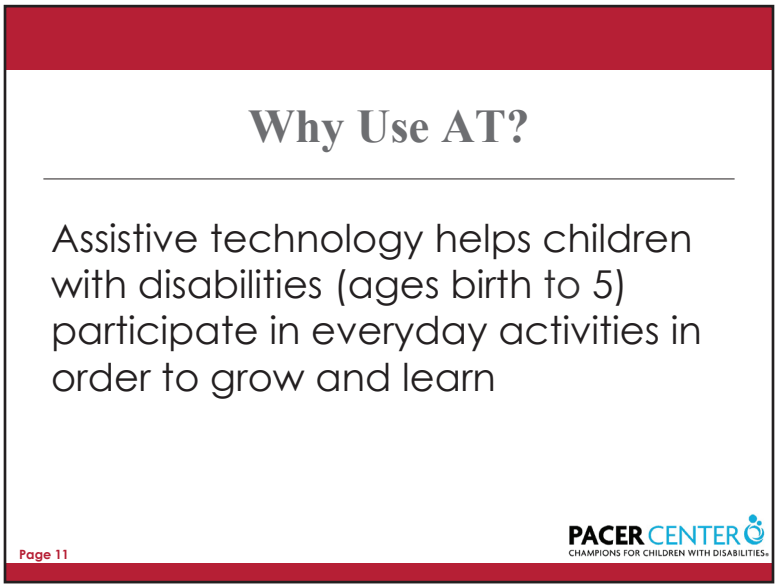
Link to OSEP Part C Clarification Letter: http://www2.ed.gov/policy/speced/guid/idea/letters/2003-1/goodman032503earlyinter1q2003.pdf

All children develop within the context of everyday activities which are the primary source of learning opportunities for a child. There are five developmental domains to consider: Physical, social-emotional, language, cognitive, and adaptive. These developmental areas are inter-related, overlapping, predictable, uneven, and unique for every child. Participation is critical to a child's development and in the context of routines provides both planned and unplanned learning opportunities, and allows for a child to practice functional skills. Everyday routines have many contexts and occur in the home or community, at mealtime or during outside play, and at birthday parties and dance class.

Slide 10: Keep in Mind That...

PRESENTER NOTES

AT for infants & toddlers looks different than AT for students and adults; AT for infants & toddlers is used to support a child's development; and many changes occur as young children grow which requires dynamic use of AT.



Slide 11: Why Use AT?

PRESENTER NOTES

The purpose of assistive technology is to create opportunities for children. All children need interactions that will allow them to grow and change. Assistive technology needs to be built into the daily routines and activities of the child. Through these opportunities assistive technology can be the bridge from where a child is to where a child could or should be.

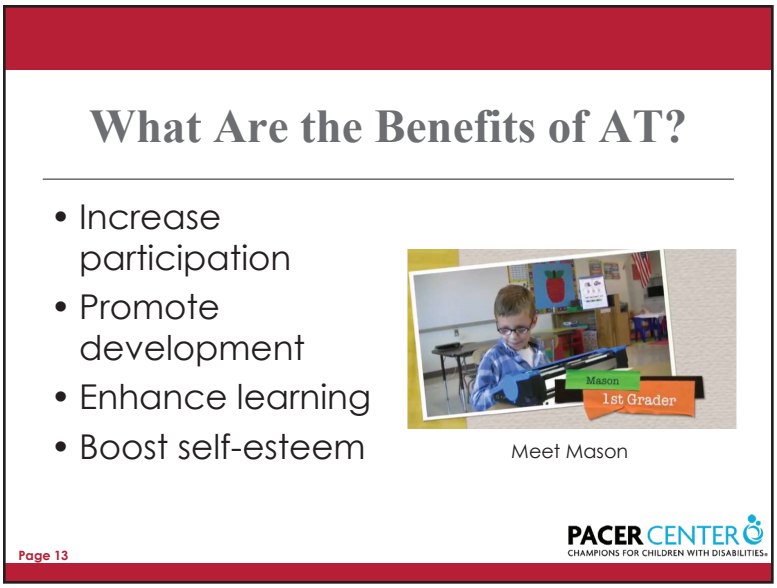
RELATED ACTIVITY OR QUESTIONS

Ask each participant to think of their own child or a particular student with a disability. Have them write down three opportunities they would like this child to have. Ask them to keep this child and the opportunities in mind throughout the workshop.

Slide 12: What are the Benefits of AT?

PRESENTER NOTES

AT creates opportunities for children to communicate and participate in a way that would not be possible without the use of assistive technology. It increases their ability to do it themselves and empowers children to experience all of life's opportunities.



Slide 13: What are the Benefits of AT? (continued)

PRESENTER NOTES

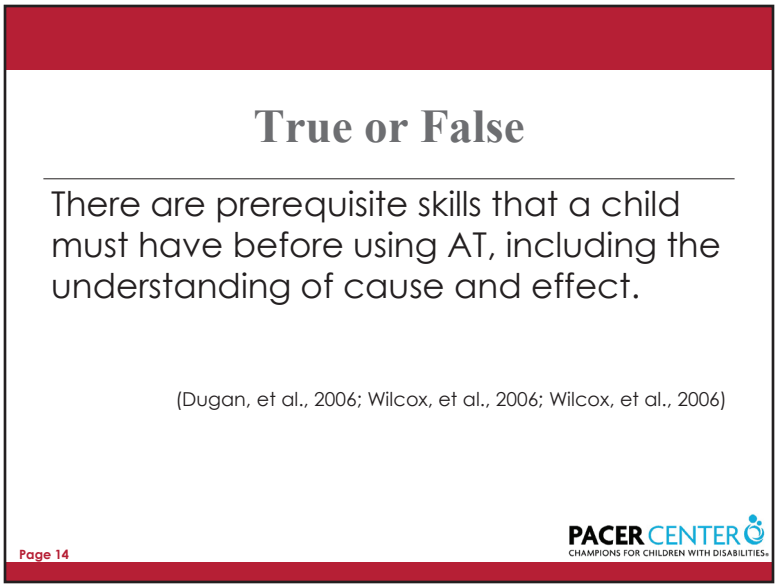
Assistive technology helps children build new skills or use the ones they already have. It also allows children to be an active part of their family, classroom, and community. It can increase their participation in activities, promote their development, enhance their learning, and boost their self-esteem.

RELATED ACTIVITY OR QUESTION

Let's look at one example of AT in Action. Meet Mason, a young learner who has and continues to use assistive technology to help him learn, grow, and develop.

MEET MASON YOUTUBE VIDEO

http://www.youtube.com/watch?v=IcUNnnwFm4g



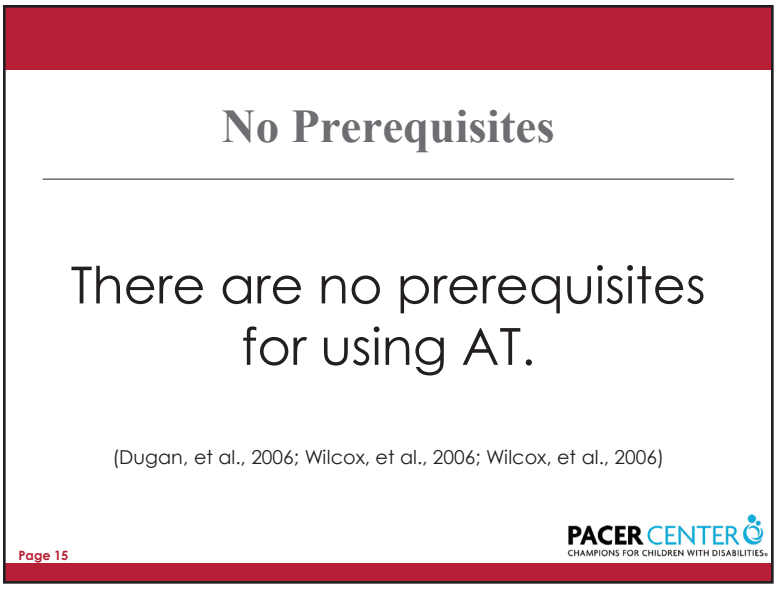
Slide 14: True or False

PRESENTER NOTES

False. It is a myth that children must already possess certain skills before they can use or benefit from assistive technology. The truth is that all children can use and benefit from assistive technology.

RELATED ACTIVITY OR QUESTIONS

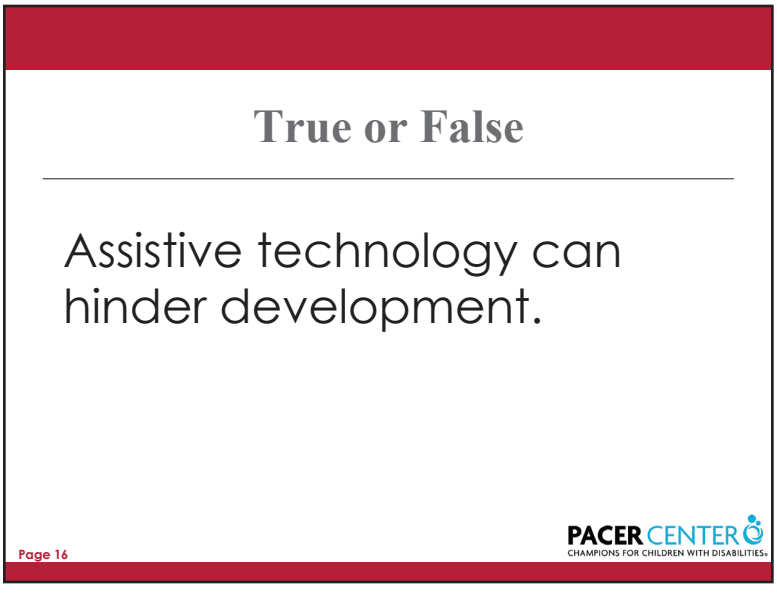
Ask the participants to think about a child again. Discuss what skills this child has and what skills they believe the child might need before using AT.



Slide 15: No Prerequisites

PRESENTER NOTES

Because it is important, let's say it again. There are NO prerequisites for using AT. Even infants can grow, learn, and increase family and community participation with the use of AT.



Slide 16: True or False

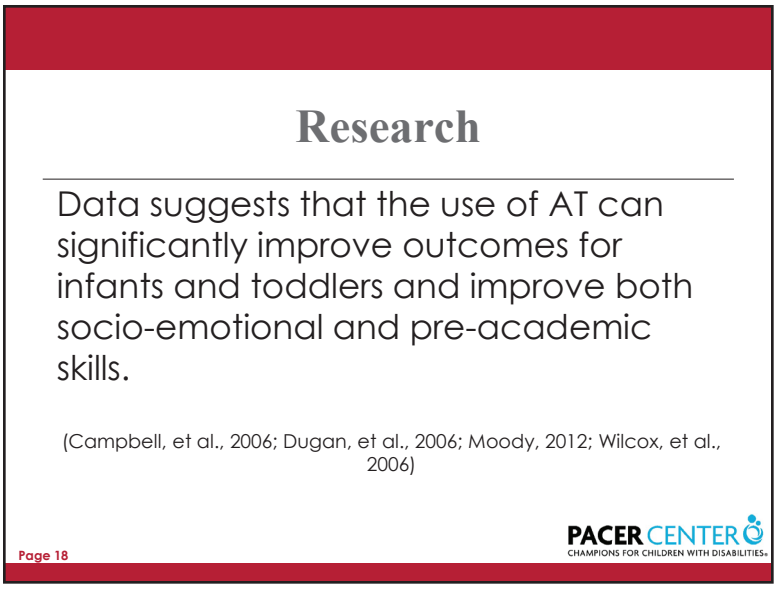
PRESENTER NOTES

False. It is a myth that AT will inhibit development in children. The research actually shows the opposite.

Slide 17: Research

PRESENTER NOTES

Research supports that even in a short amount of time the introduction of assistive technology can make a big difference.



Slide 18: Research

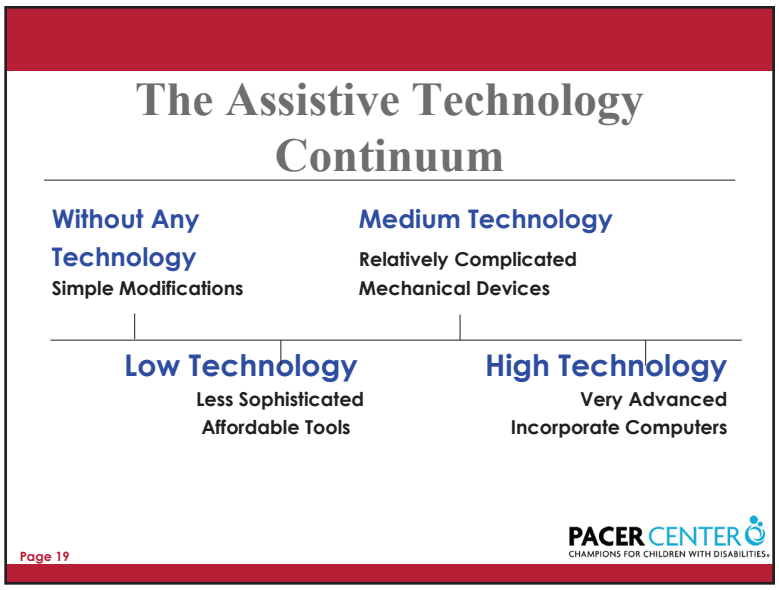
PRESENTER NOTES

With the use of AT, children can build new academic, social, and emotional skills, often at a rate that is much faster and more effective than building those skills without the use of AT.

RELATED ACTIVITY OR QUESTIONS

Ask participants to think about and discuss a tool they have used in the past to help them master a task or skill.

- How does this experience relate to a child using AT?



Slide 19: The Assistive Technology Continuum

PRESENTER NOTES

When individuals talk about AT, devices and systems are put on a continuum ranging from no technology to high technology. On one end of the continuum there are simple non-electronic devices. Looking higher up on the continuum, things become more complicated, have more moving parts, have batteries and wires, and generally can be more costly. It is also important to remember that low tech is not better than high tech and high tech is not better than low tech. It is about matching the right technology with the needs of the child. It is also likely that a child will benefit from an array of technology across the continuum depending on what their needs are.

RELATED ACTIVITY OR QUESTIONS

Give each table or group of participants a bag with four to eight assistive technology items and give them 10 minutes to explore and discuss their items within the smaller group. Give each group a different selection of assistive technology tools.

Slide 20: The Assistive Technology Continuum – Without Any Technology

PRESENTER NOTES

AT Items without any technology components are very simple adaptations that have no working parts. They include things like pencil grips or visual supports. Pencil grips come in an array of materials, shapes, and weights and are meant to help the child improve their grasp of the writing tool such as a pencil or a crayon. Visual supports are used to support learning and understanding. They consist of objects, pictures, gestures, etc. Some recognizable examples include morning schedule, social stories, reward charts, behavior charts, and much more.

RELATED ACTIVITY OR QUESTIONS

Ask the small groups to identify their items without any technology components. Have them report to the group about what the item is (or what they guess it is) and how it might be helpful to a young child.

Slide 21: The Assistive Technology Continuum – Low Technology

PRESENTER NOTES

Low tech items are items that have simple parts and batteries. Components are simple and easy to operate. They include things like toys with lights, vibrations, and textures that you can purchase at a toy store.

RELATED ACTIVITY OR QUESTIONS

Ask the small groups to identify their low technology item(s). Have them report to the group about what the item is (or what they guess it is) and how it might be helpful to young a child.

Slide 22: The Assistive Technology Continuum – Medium Technology

PRESENTER NOTES

Medium technology items are becoming more sophisticated. They have more moving parts and may take some time to learn and implement. They include things like switches used to activate a toy and communication devices programmed by an adult to provide a voice to a child who has limited or no speech.

RELATED ACTIVITY OR QUESTIONS

Ask the small groups to identify their medium technology item(s). Have them report to the group about what the item is (or what they guess it is) and how it might be helpful to a young child.

Slide 23: The Assistive Technology Continuum – High Technology

PRESENTER NOTES

High tech AT consists of devices that have complex electronic components and moving parts. They include things like computers and high tech communication devices with a feature called dynamic display.

RELATED ACTIVITY OR QUESTIONS

Ask the small groups to identify their high technology item(s). Have them report to the group about what the item is (or what they guess it is) and how it might be helpful to a young child.

Slide 24: Categories of Assistive Technology

PRESENTER NOTES

We also put AT into broad categories to make it easier to talk about. The next two slides list all of the categories traditionally used to talk about assistive technology. In the upcoming slides, each category will be defined and examples of items that fall into each category provided. There is some crossover between categories, but you will find that most AT devices fit well within these areas.

1. Aids to daily living provide support in daily routines and activities such as eating, bathing, sleeping, etc. Pictured here is a spoon designed with a handle that makes it easier to grip.
2. Mobility and positioning is a category that is designed to help people with physical disabilities get around and be in the proper position to participate in daily routines and activities. Pictured here is a power mobility device.
3. The category of vision and hearing addresses tools that help people with the range of vision and hearing disabilities, including blindness and deafness. Pictured here is an example of braille labeling.
4. The category of computer access consists of tools that help someone overcome the barrier that having a disability presents and provides access to a computer or tablet device. Pictured here is a joystick mouse which allows the user to access the pointer on the computer, move it across the screen, and make selections as someone else might use a traditional computer mouse.

The above descriptions talk about the pictures layered and embedded within the PowerPoint that will be shown during the electronic presentation of this slide.

Slide 25: Categories of Assistive Technology (continued)

PRESENTER NOTES

5. Assistive technology for education helps children with educational goals such as reading and writing. Pictured here is the Bookworm, a device by AbleNet designed to help give a child independent access to reading, shared reading, etc. Individual pages of the book can be recorded and then accessed by the child with the push of a button or switch.
6. Assistive technology for communication helps children find and use their "voice." It is appropriate for children with little or no speech or unintelligible speech. Pictured here is an eye gaze system where letters are used to form words.
7. Recreation is an important part of life so we have assistive technology that helps us access recreation activities. This includes games, toys, sports, etc. Pictured here are small manipulatives tethered to a piece of felt.
8. Assistive technology for sensory aids provides children either with needed sensory input or a calming effect when there has been too much sensory input. Pictured here is a disco sit. The bumps on this round disc provide sensory input to a child who is sitting in a chair or on the floor which may help them focus and pay attention during a routine or activity.
9. Environmental controls help give children access to a wide variety of home and school tools such as a blender, radio, TV, etc. Pictured here is the Power Link which allows the user to control things that plug in.

The above descriptions talk about the pictures layered and embedded within the PowerPoint that will be shown during the electronic presentation of this slide.

Slide 26: Aids for Daily Living

PRESENTER NOTES

First we will talk about assistive technology for daily living. This category includes items that assist in self-care and daily living. Items such as dressing aids, adapted feeding tools, and AT for personal hygiene fall into this area.

1. Pictured here is a utensil cuff designed to be used by a child with limited functionality of the hands to improve their ability to grasp and use forks and spoons. It can be used with handles of many sizes and shapes.
2. Next we have a nosey cup which is a standard type cup with a cut out for the nose to allow drinking without bending the neck or tilting the head. Some nosey cups also come with handles.
3. For our last example we have elastic shoelaces. The elastic shoelaces allow a child to put on their shoe and get a snug fit without having to be able to tie their shoes.

The above descriptions talk about the pictures that will be shown during the electronic presentation of this slide.

Slide 27: Mobility and Positioning

PRESENTER NOTES

Mobility and positioning is a category that people are most familiar with today. This category includes devices that vary a great deal in complexity. There are very low tech items like a bean bag chair and devices as complex as a power wheelchair.

1. Wheelchairs come in many sizes and with a variety of technology capabilities. Wheelchairs are designed to improve mobility.
2. Gait trainers are designed for use by people of all ages who have a physical disability. It is a wheeled device that helps a person who is unable to walk independently to learn or relearn to walk safely and efficiently as part of gait training.
3. A walker is also designed to help with independent mobility and provide support.
4. Positioning forms are designed to help provide support for babies and toddlers who have low tone or difficulty maintaining a position.
5. Standers provide partial weight bearing support to help strengthen critical motor skills so a child can progress toward independent standing. They also provide alternate body positions for children with physical disabilities.

The above descriptions talk about the pictures layered and embedded within the PowerPoint that will be shown during the electronic presentation of this slide.

Slide 28: Go Baby Go

PRESENTER NOTES

For very young children there are few choices when it comes to mobility devices. Cole Galloway from the University of Delaware and a team of people are trying to change this by adapting readily available motorized cars designed for young children and modifying them for children with disabilities. Let's look at this video about the possibilities of powered mobility for young children.

LINK TO YOUTUBE VIDEO

How One Man's Trip to Toys 'R' Us Brought Mobility to Hundreds of Kids With Disabilities - https://www.youtube.com/watch?v=U-NE7B0RTdA (4:48).

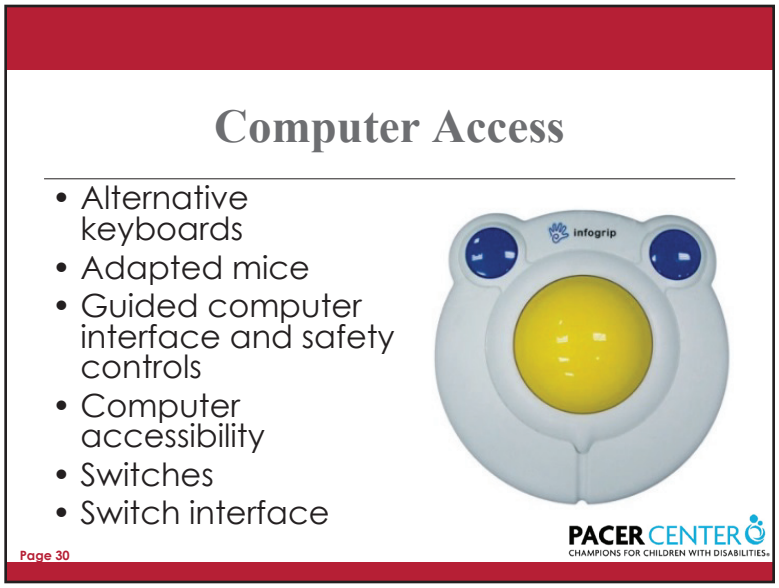
Slide 29: Vision and Hearing

PRESENTER NOTES

Assistive technology for vision and hearing is also a category that people are familiar with today. However, it is a much bigger category than many realize. Audio books use technology to provide live or electronic narration of a book and are in this category, as well as large print text and vibrating phone alerts.

1. A light box is designed to help teach basic visual skills as well as more complex visual-motor and visual-perceptual skills. The high contrast background created by the light box's illuminated surface makes a variety of visual tasks easier to perform. The goal is that using brightly colored items will motivate students to use their vision. There are many devices that help magnify what someone is looking at.
2. Pictured here is a magnifying bar designed to help magnify words and lines in printed material such as in a book or worksheet.
3. Screen readers (not pictured) are computer software that use a computer voice to read a variety of text or help someone with a visual impairment navigate the computer screen.
4. The personal sound amplifier helps someone with a hearing impairment hear important noise such as the teacher talking while minimizing potentially distracting background noise. The amplification of the teacher is better than the amplification of the noise.
5. The vibrating alarm clock provides an alternate alerting system to someone who cannot hear the clock's auditory alarm.

The above descriptions talk about the pictures layered and embedded within the PowerPoint that will be shown during the electronic presentation of this slide.



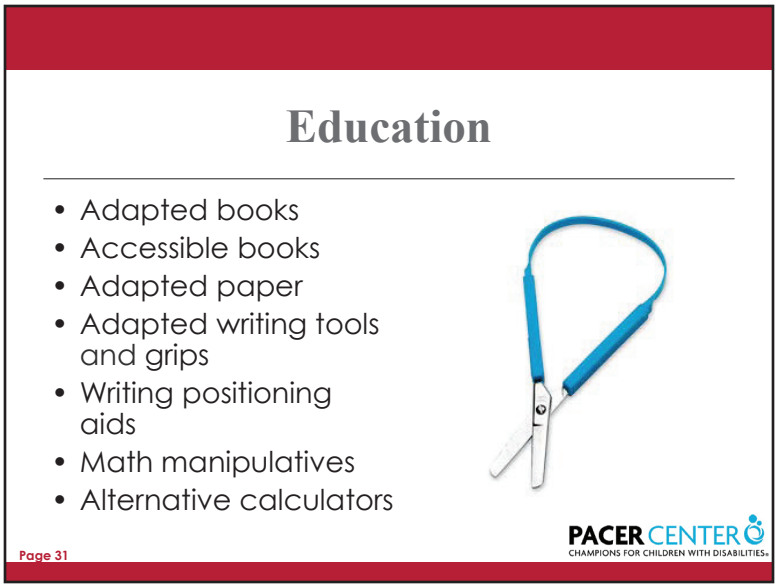
Slide 30: Computer Access

PRESENTER NOTES

Computer access is a category of technology that helps children use traditional technology like a computer. There are a wide range of access methods including a smaller size mouse, a joystick, or rollerball mouse. There are also more complicated scanning and switch systems that make computing accessible to a wide variety of users.

1. Alternative keyboards come in a variety of shapes, sizes, and configurations, including a plug and play keyboard that plugs in and works instantly, a programmable keyboard which gives more flexibility in creating layouts, and an onscreen keyboard pictured here is a small colorful QWERTY layout.
2. Trackballs and joysticks provide alternative ways of moving the mouse and interacting by clicking, selecting, and moving things.
3. The touch screen allows users to interact with the content on the computer by touching the screen. The finger essentially becomes the mouse, allowing you to select things, move things and much more.
4. When other options do not work, then we might look at a switch. Switches come in a wide range of sizes, touch sensitivity, and function.
5. Along with a switch, we need a switch interface which is a device that helps the computer understand what the switch is telling it to do.

The above descriptions talk about the pictures layered and embedded within the PowerPoint that will be shown during the electronic presentation of this slide.



Slide 31: Education

PRESENTER NOTES

The education category is particularly important for young children and assists them in participating in classroom activities. It allows them to access instructional and play materials in novel ways and helps them build those priceless early skills that will be the base for their future learning success.

1. Electronic digital books often combine elements of print with audio, making them very interactive and engaging.
2. A talking calculator provides audio support for numbers and calculations. This one is also large for someone with vision or motor difficulty.
3. Adapted paper consists of tools such as raised line paper, different weights or thickness of paper, and more. Raised line paper provides a visual and tactile boundary of where writing should occur.
4. Audio books are live narrated books or books read with a computer voice.
5. Adapted writing grips help the user interact with a writing tool to write, color, and draw.
6. Adapted scissors provide support when cutting is difficult with traditional scissors.

The above descriptions talk about the pictures layered and embedded within the PowerPoint that will be shown during the electronic presentation of this slide.

Slide 32: Communication

PRESENTER NOTES

Communication is also a crucial category. Children who are able to communicate effectively are able to have their needs met, express thoughts and emotions, and build relationships with those around them. Assistive technology for communication can be as simple as a picture symbol and as complex as a dynamic display device. As previously mentioned, there are no prerequisites for introducing a tool to help increase speech and language skills. The pictures selected here represent the continuum of communication.

1. Picture communication uses symbols or picture representations to communicate a single concept. Here you see what might be called a PECS (Picture Exchange Communication System) book with a variety of symbols that the users search through to communicate their intent. The picture symbols include items commonly found in a user's book (e.g., food, activities, rewards, etc.).
2. Moving up the continuum, we have a single message device. This particular one is called a Big Mac. Typically a single message is programed on the device and placed near an activity or the user to support communication. A common first message might be, "I want more juice."
3. Next we have a mid-tech device. There are approximately 32 "cells" containing a variety of words. A voice recording is made for each word or selection. The user directly selects them with a finger. If that is not possible, the user can activate a switch or get help from a communication partner, which is often a parent, a sibling, or a teacher.
4. Highest on the continuum are sophisticated devices with many features. Pictured here is an iPad with the communication app Proloquo2Go. These more sophisticated, complex devices often come pre-loaded with a wide range of vocabulary and function and can be customized by the parent or teacher for the individual user.

It is important to understand the **language system** of the many devices available when choosing a device for a user.

The above descriptions talk about the pictures layered and embedded within the PowerPoint that will be shown during the electronic presentation of this slide.

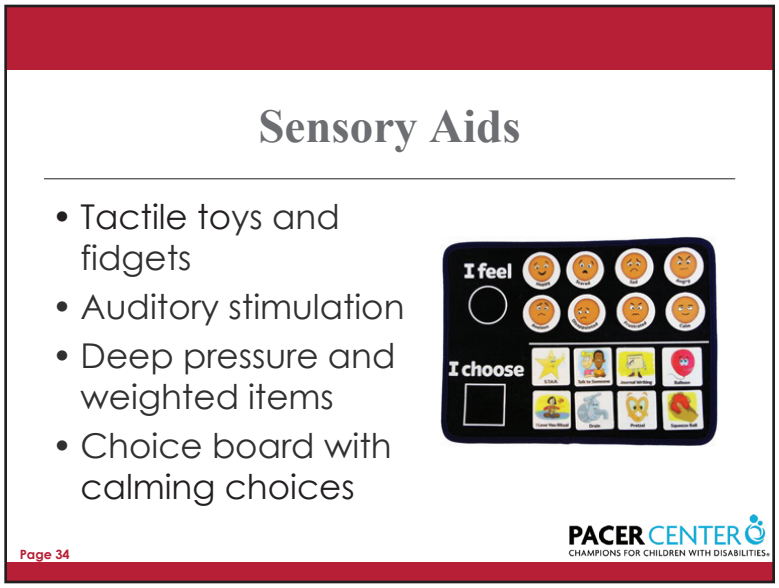
Slide 33: Recreation

PRESENTER NOTES

Play is essential to early childhood development. It is through play that children learn to interact with their physical and social worlds. Assistive technology can improve a child's ability to learn through both structured play and free play, and helps build peer relationships.

1. Adapted art tools like these special paint brushes provide a different kind of grip that makes it easier to use and manipulate to create art.
2. Adapted bikes give children the opportunity to pedal and participate in an activity common to many children.
3. Adapted toys allow children to control something with a switch, with sound, and engage in an activity that brings them learning and socialization opportunities. It also brings them joy!
4. Adapted swings provide a safe, supportive environment to give children the opportunity to engage in another common play activity.
5. Adapted games give players of all abilities access to the same games and play opportunities.

The above descriptions talk about the pictures layered and embedded within the PowerPoint that will be shown during the electronic presentation of this slide.



Slide 34: Sensory Aids

PRESENTER NOTES

Many people are surprised by the category of sensory aids. Yet this category is truly as important as all of the others. Children who are receiving too much or too little sensory input are not able to focus on pre-academic or social skills. Sensory AT helps children focus on these skills by giving them extra sensory input. It can also be a way of providing a calming strategy in response to an overload of sensory input.

1. Tactile toys and fidgets provide little fingers and hands something to do. They can help the user pay attention and fidget in an appropriate manner.
2. Noise cancelling headphones help block out sound when noise is too much sensory input for the child. It helps children participate in activities that they may not have been able to because of the noise.
3. Weighted vests provide sensory input at the vestibular system, helping to calm and regulate the sensory nervous system.
4. Calming choice boards help the child learn about and understand their bodies and how they operate, and how to make choices to regulate their sensory system.

The above descriptions talk about the pictures layered and embedded within the PowerPoint that will be shown during the electronic presentation of this slide.

Slide 35: Environmental Controls

PRESENTER NOTES

Environmental controls allow the user to participate in and impact their environment. It can include using a remote control to turn a bedroom light on and a switch to turn a television on and off.

1. Pictured here we have a switch and switch interface being used to control music on an iPod or iPhone. The device is being held by a suction cup table mount.
2. Next we have a device called the Wemo which uses an app to interface with the device and control things that you plug into the device such as a lamp.

The above descriptions talk about the pictures that will be shown during the electronic presentation of this slide.

RELATED ACTIVITY OR QUESTIONS

Ask participants to categorize the items from their bag of assistive technology. Discuss as a large group any item that does not fit neatly into one category. Discuss how many assistive technology tools can achieve multiple goals in multiple categories.

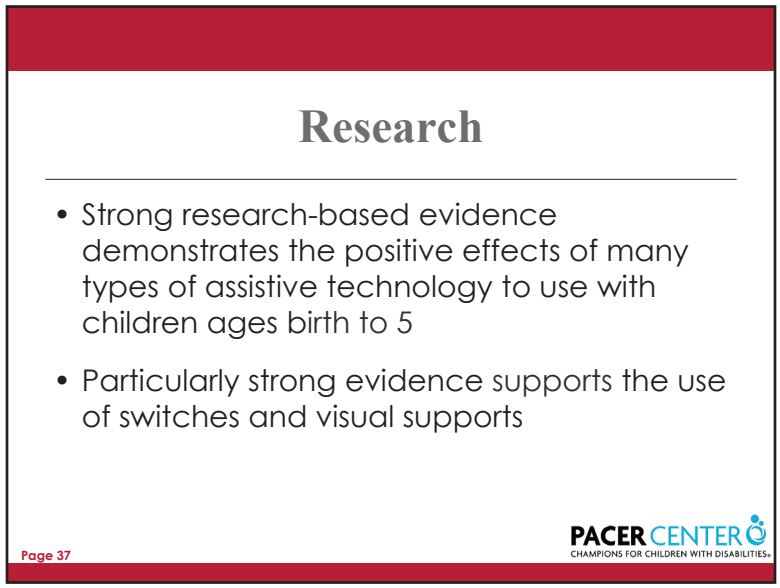
- Have the participants seen or discussed any familiar objects or devices during this conversation that they did not previously view as assistive technology?
- Do the categories expand their view of assistive technology or how assistive technology is used?

Slide 36: Hands-on with Assistive Technology

PRESENTER NOTES

Now let's take a look at some of the items we've been talking about. We have set up four stations with a variety of assistive technology for you to see, touch, and try.

Gather a variety of assistive technology for participants to explore. Check with a local lending library such as the Simon Technology Center to get items you may not have.



Slide 37: Research

PRESENTER NOTES

New studies are being done and published in increasing numbers. The research that exists shows strong support for the use of assistive technology for all children, including infants and toddlers. Items ranging from low-tech to high-tech have all been found to be effective. The use of switches and visual supports have been studied a great deal and research suggests both of these are extremely effective.

Slide 38: Research

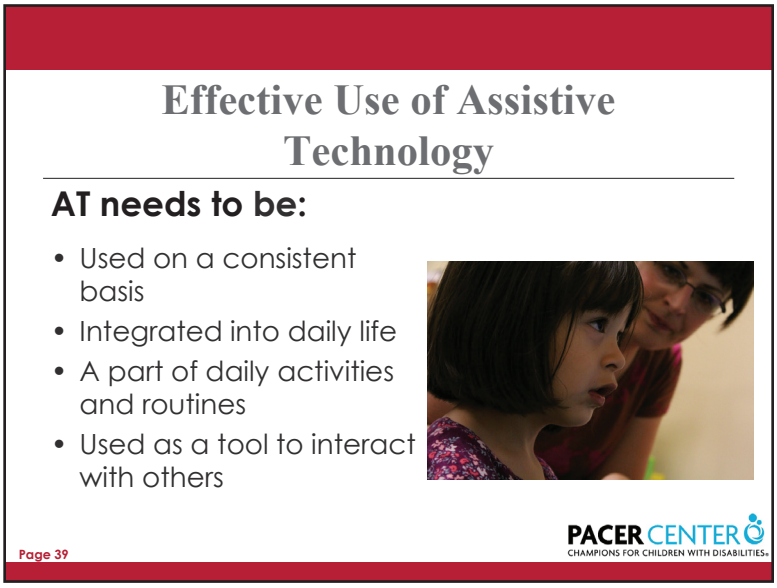
PRESENTER NOTES

This slide references a synthesis of research done by Carl Dunst, Carol Trivette, Deborah Hamby, and Andrew Simkus called Systematic Review of Studies Promoting the Use of Assistive Technology Devices by Young Children with Disabilities. (Research Brief Volume 8, Number 1 2013)

RELATED ACTIVITY OR QUESTIONS

Ask participants to share anecdotal stories about the positive effects of AT in the life of a child they know.

- Are there particular items that you have seen great success with?
- Are there items you or the children you work with have struggled with using?
- If you have struggled with using items, what was the problem?
- Was the problem with the assistive technology or the way it was used?

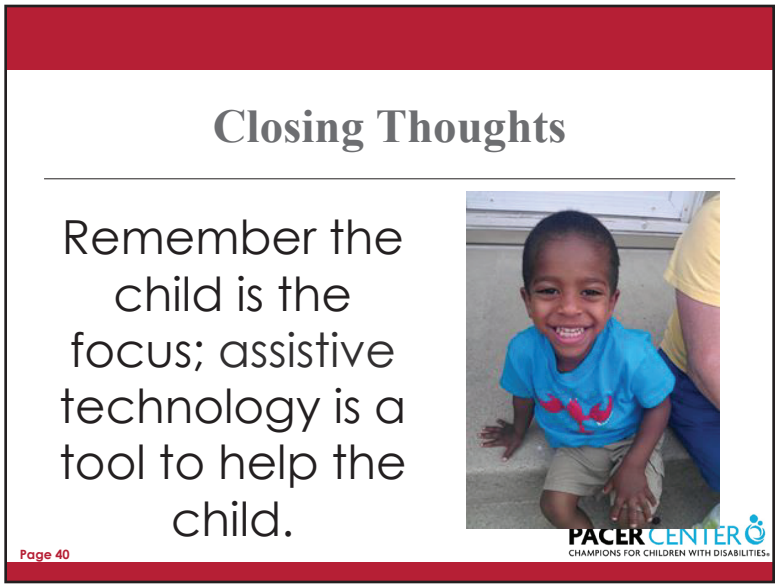


Slide 39: Effective Use of AT

To be effective, AT needs to become a part of the child's daily routine and be consistent across all environments. AT use should also increase and even allow children to initiate participation.

We know AT makes a difference because of the stories the educators and families share with us. In one case, a young child came to the Simon Technology Center for an exploration of assistive technology. She was physically impaired but the specialist noticed she could move her toe. The team quickly set up a switch activated toy, which was a bear that sang, and she used her toe to operate it. Her mother shared that this was the first time her daughter had controlled anything in her life.

How precious are the words, "I love you" from a child to a parent – especially when a child who cannot verbalize those words finds a way to communicate them through technology? One child we know had difficulty with their communication skills and unlike other parents, this mom had yet to hear her child say those magical words. With the introduction of a simple 9-message communication device, the child activated a message telling her mom, "I love you." It was a joyous moment for the mother.



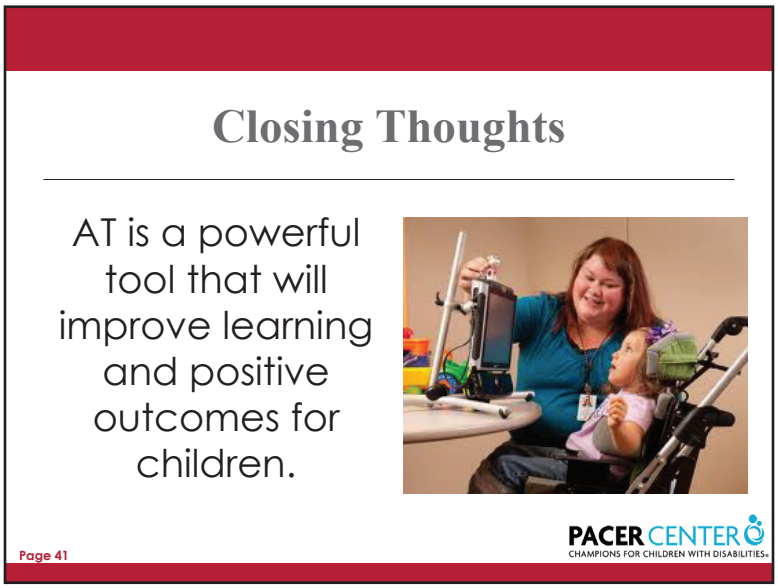
Slide 40: Closing Thoughts

Assistive technology devices can be powerful tools, but we need to be aware that they are tools. The child and the child's needs are the most important part of the equation. Teachers and parents play a critical role in identifying those needs and identifying technology that might help.

RELATED ACTIVITY OR QUESTIONS

Ask participants to think back to the child they thought about in the first part of the presentation.

- Did they see a piece of AT that might be appropriate for that child?
- What about that child makes that piece of AT an appropriate choice?

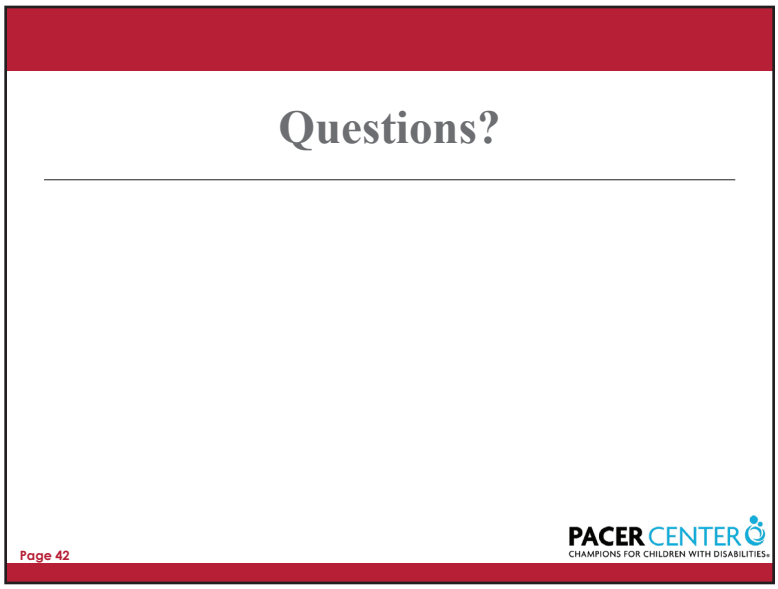


Slide 41: Closing Thoughts

With the right device, assistive technology can be a powerful tool to improve outcomes for children and increase their opportunities for learning.

RELATED ACTIVITY OR QUESTIONS

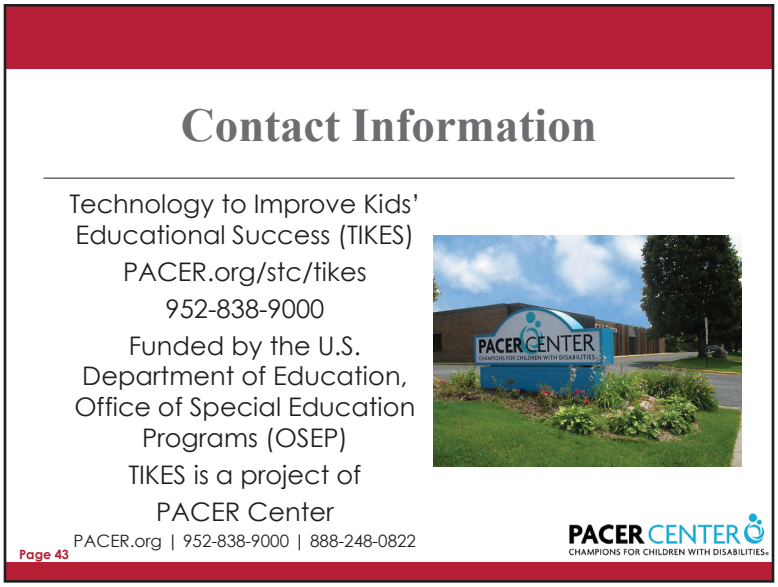
Encourage participants to think first about the child and then about the desired outcome. Remind them that this is an introduction and that as they move forward in the workshop series, they will learn more about AT devices, how to implement the use of AT in the home and classroom, and most importantly, how to keep the child in mind when exploring AT.



Slide 42: Questions

PRESENTER NOTES

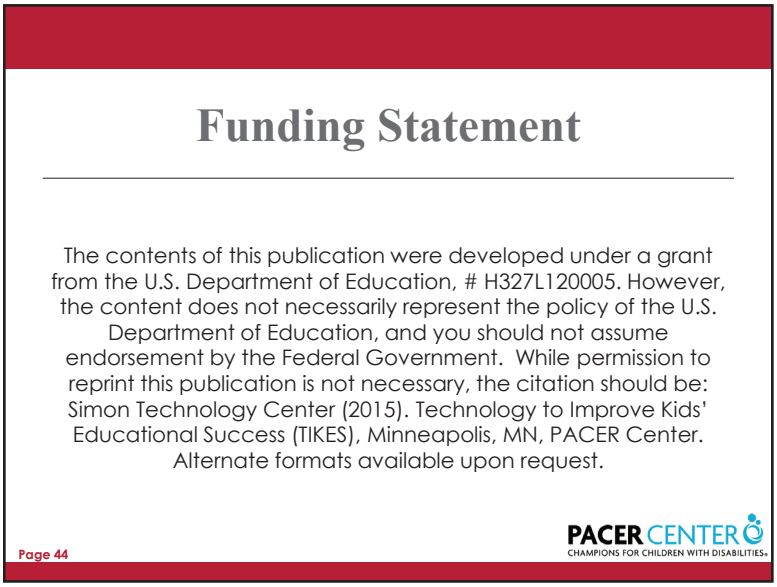
Thank you for letting us share this very important topic with you. Please take a minute to complete the TIKES workshop evaluation. We appreciate your feedback and comments very much.



Slide 43: Contact Information

PRESENTER NOTES

For information about this or other training materials available through the TIKES project, please contact them using the above contact information.



Slide 44: Funding Statement

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Today's date: _____ Location of Workshop: _____

TIKES Workshop Evaluation: Providers

We'd appreciate your feedback on this workshop.

1. **Are you a: (Please check all that apply)**

❑ Part C (birth to 3) Educator ❑ Part B (3 to 5) Educator ❑ Administrator ❑ Para professional

❑ Related Service Provider (OT, PT, SLP, etc.)

❑ Other (please specify) _____

2. **What school district are you part of?**

❑ ISD#271 Bloomington ❑ ISD#196 Rosemount-Eagan-Apple Valley

❑ ISD#11 Anoka-Hennepin ❑ Other (please specify)_____

3. **Are you a participant of the TIKES project?** ❑ Yes ❑ No

4. **On the whole, how would you rate this event?**

❑ Poor ❑ Fair ❑ Good ❑ Very Good ❑ Excellent

5. **Have you learned anything new at this workshop?** ❑ Yes ❑ No

I found these topics most worthwhile: _____

_____

6. **I have gained awareness of the vast variety of AT options and features as a result of this training.**

I strongly disagree	I disagree	I somewhat disagree	I somewhat agree	I agree	I strongly agree
1	2	3	4	5	6

7. **I have gained knowledge of AT, evaluating appropriateness, strategies and use of AT as a result of this training.**

I strongly disagree	I disagree	I somewhat disagree	I somewhat agree	I agree	I strongly agree
1	2	3	4	5	6

8. **This training was of high quality.**

I strongly disagree	I disagree	I somewhat disagree	I somewhat agree	I agree	I strongly agree
1	2	3	4	5	6

Evaluation continues on pg. 2

9. This training was highly relevant?

I strongly disagree	I disagree	I somewhat disagree	I somewhat agree	I agree	I strongly agree
1	2	3	4	5	6

10. This training was highly useful?

I strongly disagree	I disagree	I somewhat disagree	I somewhat agree	I agree	I strongly agree
1	2	3	4	5	6

11. What suggestions do you have for improving this workshop?_____

_____

_____

12. Other Comments: _____

_____

_____

Today's date: _____ **Location of Workshop:** _____

TIKES Workshop Evaluation: Parents

We'd appreciate your feedback on this workshop.

1. **Are you a: (Please check all that apply)**

   ❑ Parent ❑ Surrogate/foster parent ❑ Grandparent ❑ Other relative/guardian

   ❑ Other (please specify) _____

2. **Parents and guardians, does your child have a: (please check all that apply)**

   ❑ Individualized Family Service Plan (IFSP, birth to 3)

   ❑ Individualized Education Program (IEP, 3 to 5)

   ❑ I don't know

3. **What school district are you part of?**

   ❑ ISD#271 Bloomington ❑ ISD#196 Rosemount-Eagan-Apple Valley

   ❑ ISD#11 Anoka-Hennepin ❑ Other (please specify)_____

4. **Are you a participant of the TIKES project?** ❑ Yes ❑ No

5. **Does your child have a child-specific AT plan in place?** ❑ Yes ❑ No

6. **Parents and guardians, what is your child's age?** _____

7. **On the whole, how would you rate this event?**

   ❑ Poor ❑ Fair ❑ Good ❑ Very Good ❑ Excellent

8. **Have you learned anything new at this workshop?** ❑ Yes ❑ No

   I found these topics most worthwhile: _____

   _____

9. **I have gained awareness of the vast variety of AT options and features as a result of this training.**

I strongly disagree	I disagree	I somewhat disagree	I somewhat agree	I agree	I strongly agree
1	2	3	4	5	6

10. **I have gained knowledge of AT, evaluating appropriateness, strategies and use of AT as a result of this training.**

I strongly disagree	I disagree	I somewhat disagree	I somewhat agree	I agree	I strongly agree
1	2	3	4	5	6

Evaluation continues on pg. 2

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11. This training was of high quality?

I strongly disagree	I disagree	I somewhat disagree	I somewhat agree	I agree	I strongly agree
1	2	3	4	5	6

12. This training was highly relevant?

I strongly disagree	I disagree	I somewhat disagree	I somewhat agree	I agree	I strongly agree
1	2	3	4	5	6

13. This training was highly useful?

I strongly disagree	I disagree	I somewhat disagree	I somewhat agree	I agree	I strongly agree
1	2	3	4	5	6

14. What suggestions do you have for improving this workshop?_____

_____

_____

15. Other Comments: _____

_____

_____

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What is Assistive Technology and How Can it Help My Child? Tips for Parents

Like most 2-year-olds, Malik is busy exploring his world and developing his own personality. Although Malik cannot communicate verbally, he still has plenty to say thanks to his electronic communication device that "speaks" for him.

At age 4, Angelica loves going to school, but she struggles with change. The use of a visual timer in the classroom helps Angelica be aware of how much time she has left to do an activity, which eases her anxiety and prepares her for the change. This allows Angelica to successfully transition between activities alongside her friends.

The type of tools that help Malik and Angelica are called assistive technology (AT), and they can help your child regardless of age or disability.

What is assistive technology?

Assistive technology refers to a wide range of tools, products, software, and apps that help children with disabilities do something they otherwise couldn't do. In more formal terms, assistive technology is defined by the Individuals with Disabilities Education Act (IDEA) as, "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 functional capabilities of a child with a disability." Assistive technology can help with nearly any skill, and can be easy to use. AT ranges in complexity from simple, low-tech solutions — a crayon with a large foam grip that helps a child to color independently — to high-tech communication devices that can verbalize the thoughts of someone who needs help to speak.

Why use assistive technology?

When used properly, assistive technology provides more opportunities for children to engage in activities which are important for healthy child development. It can help children develop their sense of independence, enable them to overcome obstacles, and help them confidently

complete tasks that previously required assistance (e.g., feeding or dressing). There are no specific age or skill requirements to use assistive technology, meaning that almost all children with disabilities can benefit.

How can assistive technology help my child?

There are many ways that assistive technology can improve the lives of young children, but one common theme is that AT functions as a bridge between a child's current skills and the skills he or she needs. For example, a child may be able to wash his or her hands after watching a parent do it, but might need some help to do it independently. An

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AT solution could be as basic as displaying simple picture instructions next to the faucet for the child to follow. Assistive technology can help with nearly any skill a young child needs. Common skill areas include:

- **Daily routines and activities:** AT, such as special spoons and timers, provide many ways to increase a child's independence by making daily routines and activities such as eating and sleeping easier and more accessible.
- **Social skills and behavior:** AT, such as picture schedules and scripts, can simplify the process of teaching. It can also support the development of important behavioral and social skills, and be a valuable tool to manage challenging behaviors.
- **Sensory:** AT, such as a weighted bear, helps increase or decrease stimulation so that a child can feel more comfortable and secure in his or her environment.
- **Fine motor skills:** Assistive technology offers ways to adapt items so they can be used by young children who struggle with grasping objects.
- **Communication:** Between birth and age 5, a child's vocabulary (both words they understand and words they can use) grows at an astounding rate. Children who struggle to communicate verbally can use technology that gives them their own voice.
- **Literacy skills:** Even very young children can begin to develop literacy skills. Assistive technology can make it easier and more engaging for children with disabilities to understand and practice these skills.
- **Computer access:** Children who struggle to use a computer or mobile device can try adapted controls to accomplish their tasks.

Examples of common assistive technology for young children are available in the TIKES handout, "Examples of Assistive Technology for Young Children." For more information on finding the right assistive technology for your child, consult other TIKES' materials, such as the Child-Centered AT Plan, at PACER.org/stc/tikes.

How can I start using assistive technology with my child?

A simple discussion with a knowledgeable professional can provide you with the general information needed to start exploring AT for your child. If your child is under age 3 and has an Individual Family Service Plan (IFSP), talk with your service coordinator about assistive technology for your child. If your child is 3 or older and has an Individualized Education Program (IEP), talk with your case manager about assistive technology for your child. Your IFSP/IEP team can suggest how AT might help, and discuss examples of potential technology to try.

For more information on how to get started exploring AT for your child, read the TIKES tip sheet, "Explore Assistive Technology and Open New Doors for Your Child." Assistive technology can make a tremendous difference in the life of your child, and it's up to you to begin exploring the possibilities.

The contents of this publication were developed under a grant from the U.S. Department of Education, # H327L120005. However, the content does not necessarily represent the policy of the U.S. Department of Education, and you should not assume endorsement by the Federal Government. While permission to reprint this publication is not necessary, the citation should be: Simon Technology Center (2015). Technology to Improve Kids' Educational Success (TIKES), Minneapolis, MN, PACER Center. Alternate formats available upon request.

Considering AT for Students with Disabilities: A Resource for IEP Teams

A handout in CPIR's module *Overview of Technology for Students with Disabilities*

March 2021 | *Additional eLearning Hub Resource*
from the Center for Parent Information and Resources
https://www.parentcenterhub.org

In CPIR's eLearning Hub for Parent Centers, the module on the Overview of Technology for Students with Disabilities mentions a resource for IEP Teams that are considering a student's need for assistive technology. That resource is on the CPIR website—specifically at https://www.parentcenterhub.org/considering-at/

We are pleased to provide you with a Word version of that IEP Team resource as well as a version in PDF, for easy sharing and emailing to families and professionals.

Updated, March 2021

This checklist is designed to help IEP teams consider the needs of students with disabilities for assistive technology. The checklist has been adapted from the Nebraska Department of Education's *Nebraska IEP Technical Assistance Guide* (1998, September). That document is no longer available online, but a 2014 edition is available, at:

http://www.education.ne.gov/sped/technicalassist/Setting%20Goals%20Achieving%20Results%203-11-14.pdf

Assistive Technology: What is it?

Assistive technology enables children with disabilities to participate more fully in all aspects of life (home, school, and community) and helps them access their right to a —free appropriate, public education in the —least restrictive environment.

The IEP team must determine whether an individual child needs an assistive technology device or service, and if so, the nature and extent to be provided. It is possible that an assistive technology evaluation will be required to determine if the child would need an assistive technology service and/or assistive technology device. Any needs identified should be reflected in the content of the IEP, including, as appropriate, the instructional program and services provided to the child (92 NAC 51 007.07B7).

Why is it important?

Assistive technology increases a student's opportunities for education, social interactions, and potential for meaningful employment. It also supports a student's participation in learning experiences in the least restrictive environment. Assistive technology is a tool to help the student benefit from the general education curriculum, and access extracurricular activities in home, school, and work environments.

In addition:

- A child's need for assistive technology must be determined on a case-by-case basis and could be special education, related services or supplementary aids and services for children with disabilities who are educated in the least restrictive environment.
- A district must provide a device for use at home if necessary for FAPE. Decisions regarding the use of the assistive technology device or service in other settings outside school must be made on an individual basis.
- A school may access alternative funding sources to defray costs of assistive technology devices and services. Schools may not compel parents to file an insurance claim and may not condition provision of equipment or services on filing or approval of a claim.

1. How do we do it?

The following written process addresses primary questions related to assistive technology:

The team needs to consider carefully what environments the student accesses now, what are the tasks the student is required to accomplish, and what challenges does the student have in accomplishing the tasks. This will show us what the current educational need(s) are of the student. Then ask the question—**Would assistive technology of some kind enable the student to meet the goal?**

Areas to consider include, but are not necessarily limited to:

__ Handwriting

__ Spelling

__ Reading

__ Math

__ Written expression

__ Daily organization

__ Communication

__ Mobility

__ Recreation

__ Seating/positioning

__ Seeing

__ Self-care

__ Levels of independence

__ Cognitive processing

Proceed to Step #2.

2. What has been tried to meet the student's special education needs?

Once the area of educational need(s) has been identified, the team needs to review what has been tried in the past to address the need(s) of the student. This may include a variety of interventions achieved through strategies or modifications not typically considered assistive technology. These may be low-tech in nature or there may be high-tech assistive technology devices in place.

> **Example:** A student with a learning disability, unable to memorize multiplication facts, may use a multiplication table. The multiplication table could be identified as a supplementary aid in the regular education environment. An assistive technology device, such as a calculator (identified as a low-tech device) could also be used to meet the student's needs.

Proceed to Step # 3.

3. Is it working?

Is the current strategy, modification or device meeting the student's specific need in the environment? Additionally, does the current strategy, modification or device encourage the level of desired independence, allowing the student to remain in the least restrictive environment (LRE) where he or she is able to receive FAPE?

Proceed to Step #4 and #5, or #6.

4. and 5. Is it working? YES. Provide documentation and evidence to support this conclusion.

If the team agrees the specified educational needs and level of independence are being met within the LRE, and the student's current programming is appropriate with the strategies, modifications, and/or devices in place. There should be evidence to support this conclusion. The evidence may be in the form of:

__ Work samples

__ Classroom tests

__ Formal testing

__ Recorded observations

__ Videotaping

__ Any other form appropriate to the student and his or her needs.

The use of successful interventions may be documented within the IEP as part of the Present Levels of Academic Achievement and Functional Performance (PLAAFP), within goal statements, as components of the objectives, or as related services.

Proceed to Step #13.

---

6. Is it working? NO

If the team agrees that the current educational needs are not being met, they should…

Proceed to Step #7.

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7. What was tried? What were the results?

What strategy, device, or modification was tried? If there were more than one, deal with each one separately.

Document the time period the strategy, device, or modification was tried. Indicate if there were any breaks in service that may have affected the outcome. Provide information and descriptions about how each strategy, modification or device was used and indicate the anticipated outcome.

Actual outcomes or results should be noted. Indicate what worked and what did not work. Are there implications regarding further strategies or modifications or devices that should be considered to achieve the student's goals? Specific information and/or data collected from this step should be used in considering alternative interventions.

Proceed to Step #8.

---

8. Do we as a collaborative team have the necessary knowledge and resources to continue to try to meet the student's needs?

After efforts have been made to attempt modification, apply strategies, and/or use assistive services or devices, and it is apparent the IEP team's efforts are not affecting the desired change, determine a course of action.

By asking this question, you can determine whether or not you can continue to brainstorm and come up with strategies on your own, whether there are more resources that can be tapped, or whether it is time to consider advice or assistance from an outside source. The next step is to either seek additional process or continue to work as a team.

Proceed to Step #9 or Step #11.

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9. Do we have the necessary knowledge and resources? NO

Proceed to Step #10.

---

10. Seek additional assistance

At this point, the IEP team may consider a referral to another source for information. There may be other resources within the school building or school district, or other agencies, local or otherwise, the IEP team may want to use.

As a result of information provided by your source of additional assistance…

Proceed to Step #12.

---

11. Do we have the necessary knowledge and resources? YES

The team needs to develop a plan of action to meet the specific need(s) of the student. Based on what has been tried, they need to decide on alternative intervention strategies, service or devices, or modifications to interventions already in place.

Proceed to Step #12.

---

12. What will be tried?

Given the specific educational needs of the child, the team needs to address the following questions regarding the assistive technology device:

__ Under what conditions will it be tried?

__ In what environment(s) will it be tried?

__ How long will it be tried?

__ What is the criterion for determining whether or not the need is being met?

Based on the discussion of previous outcomes, develop an action plan and incorporate it into the IEP as documentation of consideration for assistive technology that will be acted upon to meet the appropriate educational needs of the student in the LRE.

NOTE: Assistive technology is necessary as a supplementary aid if its presence (along with other necessary aids) supports the student sufficiently to maintain the placement, and its absence requires the student's removal to a more restrictive setting. For example—If a student with multiple physical disabilities can make independent, educational progress on his or her IEP goals in the regular classroom with the use of a computer and an augmentative communication device and cannot make such progress in that setting without the devices, then those devices are necessary supplementary aides.

Assistive technology needs for each student will vary. The criteria will also be unique to each student, depending on the desired goal. The goal for each student should include:

__ Increased independence

__ Task mastery

__ Rate at which a task is accomplished

__ Stamina to accomplish task(s)

__ Accuracy

__ Attentiveness

__ Increased interactions

__ Other child-specific criteria

As with any IEP considerations, goals related to assistive technology depend on the individual needs of the child and must be determined on a case-by-case basis. The service or device is related to, or integrated into the goal or short-term objectives, but is it the student's needs, not service or device limitation, that drives the decisions?

Proceed to Step #13.

13. Consideration is an ONGOING PROCESS.

It is important to remember that consideration of assistive technology and evaluating its role in the education program of a student is an ongoing process. Change in environment, change in student skill level or needs, and new technology can all influence the process. While there is a beginning, there could quite possibly be no end. As the student's environments change, as the tasks change, and abilities change, the student's needs will likely change as well.

The process of consideration is required to be a part of every annual IEP review, at minimum. In best practice, the evaluation process will be ongoing with those around the student continuing to ask **"Are the student's needs being met?"**

How Do We Know We Are Doing It Right?

The IEP team:

__ Considers what they want the student to be able to do within the educational program, what he or she isn't able to do because of his or her disability.

__ Documents on the IEP what has been tried, how long it was tried, and the results.

__ Documents on the IEP *what* will be tried.

__ Considers whether necessary knowledge and resources have been obtained.

__ Seeks additional assistance if needed.

__ Considers the student's ongoing assistive technology needs.

****Highly Rated Resource!**

This resource was reviewed by 3-member panels of Parent Center staff working independently from one another to rate the quality, relevance, and usefulness of CPIR resources. This resource was found to be of "High Quality, High Relevance, High Usefulness" to Parent Centers.

IDEAs that Work
Office of Special Education Programs
U.S. Department of Education

The CPIR is made possible through Cooperative Agreement Number H328R180005 between OSEP and the Statewide Parent Advocacy Network (SPAN). The contents of this document do not necessarily reflect the views or policies of the Department of Education, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

Assistive Technology Works!

Family Information Guide to Assistive Technology

AED · IDEAs that Work

Family Center on **Technology** and **Disability**

www.fctd.info

About the Family Center on Technology and Disability

The Family Center (FCTD) produces and distributes a range of informational resources on the subject of assistive technology. The Center's goal is to strengthen the ability of organizations throughout the country to provide current, accurate, and useful materials to the families of children with disabilities.

Among the resources provided by the Family Center are the following:

- A fully searchable database of more than 600 abstracts of books, articles, videos, websites, and other resources concerning assistive technology
- A fully searchable database of information on approximately 1,500 organizations nationwide, that serve the disability community
- Monthly thematic newsletters on AT topics, featuring in-depth interviews with nationally-recognized experts
- Month-long online discussions of AT topics, moderated by national experts
- An annual Online Summer Institute on Assistive Technology, for which participants may receive continuing education units
- Two *Assistive Technology Resources* CD-ROMs produced annually
- A fully accessible website that provides the resources above plus an AT glossary, an introductory AT primer, AT success stories, an explanation of relevant legislation, and links to other relevant material

The Family Center is administered by the Academy for Educational Development in partnership with the Parent Advocacy Coalition for Educational Rights, the Alliance for Technology Access, InfoUse, and the Center for Assistive Technology and Environmental Access. The Family Center is funded by the U.S. Department of Education's Office of Special Education Programs (OSEP).

Visit us online at www.fctd.info

PACER CENTER

catea

AED

InfoUse

Alliance for Technology Access

Family Information Guide to Assistive Technology

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This project is supported by the U.S. Department of Education, Office of Special Education Programs (OSEP). Opinions expressed herein are those of the authors and do not necessarily represent the position of the U.S. Department of Education.

How to Use this Guide

The FCTD Family Guide to Assistive Technology includes the following sections:

- The Possibilities of Assistive Technology (AT)
- Assistive Technology in Schools
- Funding AT
- Quick Questions and Tips
- Glossary of AT Terms and Definitions
- Additional AT Information Resources

We have included many website addresses in the guide. To keep you from having to search within an organization's website for a particular piece of information, we've included the URL (the address) that will take you to the precise page within the website. That means that the URL may seem very long. Please don't let that stop you. On our website, the addresses are "hot links" so that you merely have to click on them. In the paper version, of course, that's not possible. To access the reference, type the URL into the address window of your Internet browser. Or visit our website at http://www.fctd.info and use the online Family Information Guide.

The information in the guide is accurate and current as of February 2005. You may copy and distribute portions of the guide without prior consent. Of course, we would appreciate it if you would give appropriate attribution to the Family Center on Technology and Disability. Products that are identified in the guide are meant only as examples. The Family Center and the U.S. Department of Education do not endorse specific products. There are many other fine AT devices available in addition to those pictured or discussed here.

The Family Center is always trying to improve the quality of the AT information materials that we produce. You can help us better serve you by completing the short and easy evaluation form that can be found on our website. We would happy to mail a printed evaluation form to you if you prefer.

Table of Contents

Section 1:

The Possibilities of Assistive Technology

The Possibilities of Assistive Technology

More than ever before, technology makes it possible for children with disabilities to lead independent and fulfilling lives.

For example, a young girl who is unable to speak can communicate with family and friends using a portable electronic device that "speaks" for her; a boy with a physical disability can use his electric wheelchair to participate in sports; and a young adult with a learning disability can compose a school report with the help of a computer.

Parents may have seen or heard about this type of technology and wondered how it might help their children. This equipment is frequently called "assistive technology." Assistive technology (AT) helps a person with a disability do something s/he otherwise cannot to do. Assistive technology can be anything from a simple device, such as a magnifying glass, to a complex device, such as a computerized communication system.

The term "assistive technology" comes from several laws that address the needs of people with disabilities. Assistive technology includes both the devices and the services needed to use the devices effectively. AT services might include assessing a child's need for AT and the training the child and his teacher, aide, and family to use the AT.

How Can Assistive Technology Help My Child?

The potential of technology to help children with disabilities is tremendous. Assistive technology can help children be more self-sufficient at home and in school, communicate with friends and family, get out into the community, and as they grow older, find employment. The story on page 4 illustrates how assistive technology can play a key role in the life of a child with a disability.

How Do I Determine What Type of Technology My Child Needs?

The process of choosing assistive technology for your child usually starts with an evaluation of your child's AT needs. The evaluation can be conducted by the school, an independent agency, or an individual consultant. Because the scope of assistive technology is so large, the evaluation will most likely have a focus. For example, an AT evaluation conducted by the school is directly related to achieving educational goals and outcomes.

Every AT evaluation should address what the child is having difficulty doing. For example, if a child is having difficulty with mobility, the evaluation would focus on technology to assist with that, such as a wheelchair or scooter.

During the evaluation it is important to talk about your child's strengths in addition to his challenges. For example: "What does he do well?" "What does he enjoy doing?" This type of input will provide clues as to what type of technology might work, and how well your child will respond to it.

It is also important to consider the different environments in which your child interacts with others – at home, school, and in the community. Think about how your child's needs for assistive technology might be different on the playground, the classroom, at a friend's house, or at a public place, such as a library or mall.

AnAT evaluation will result in a recommendation for specific devices and services, including any modifications to the child's environments. Long-term success with AT involves an ongoing look at need, equipment trial and evaluation followed by maintenance and growing expertise by the user, family, and professionals. It is important to remember that AT needs usually change with time, circumstances, and goals.

Meet Freddie...

Freddie is a 21-year-old young adult with spina bifida and multiple health impairments. Since he was a small child, Freddie's disabilities have severely limited his functional abilities, particularly his mobility and speech. Because of Freddie's many needs, he has relied heavily on different types of assistive technology throughout his life. His mother, Deborah, says that without AT he would not be able to live at home, attend school, go out in the community, or be employed.

Technology for Communication
Freddie was assessed for a communication device when he was in kindergarten because his speech was difficult to understand. Since then, he has used many different communication tools, and he currently uses a computerized communication device that helps him talk with others in different situations.

Technology for Mobility
Since Freddie was 2 years old he has used a wheelchair to get around at home and at school. In first grade he began to use a power wheelchair that he controlled with a joystick. The power wheelchair gave him greater freedom and now he uses it to travel throughout the community independently.

Technology for Education
Freddie also has limited use of his arms, so he cannot hold a book to read, or a pencil to write. Because of these limitations, he has used books on tape and talking computer books to help him learn to read and write. He has also used the computer to type his writing assignments for school.

Technology for Work
As a young adult, Freddie has found computer-related employment, using a computer with adaptive devices such as a trackball mouse and special software for typing.

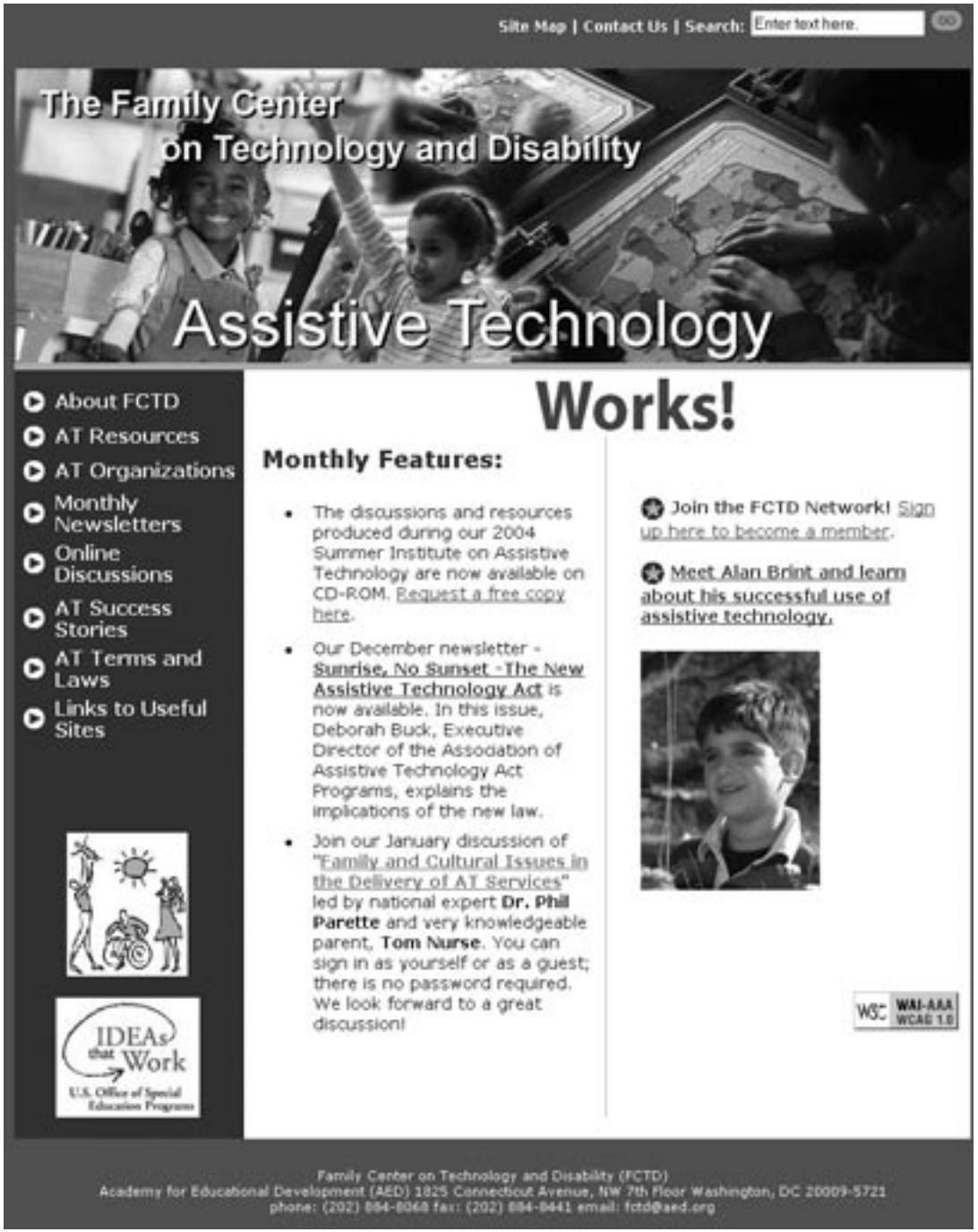
Technology for Social and Leisure Activities
For social interaction, Freddie has been able to use e-mail and the Internet to stay connected with friends and family and to keep up with current events. He also uses the computer for recreational activities, such as listening to CDs or watching videos. Freddie's mother feels that the computer has been "the most important piece of assistive technology" in his life because it provides a vital connection with the rest of the world.

Not every child will need as much assistive technology as Freddie uses, but AT can help many children with different needs realize their potential. Assistive technology can include adapted toys, handheld dictionaries, computers, powered mobility, augmentative communication devices, special switches, and thousands of commercially available or adapted tools to assist an individual with daily living activities.

Learning About Assistive Technology

Parents can help to identify potential AT for their children if they learn more about the choices that are available. Speech-language therapists, occupational therapists and school professionals are often a good starting point. You may not be aware, however, of the many other organizations that provide AT information and training, such as parent training and information centers (PTIs), community technology centers, state assistive technology programs, and rehabilitation centers. The Family Center on Technology and Disability (FCTD) is funded by the U.S. Department of Education to make available a wide range of AT resources to people and organizations that work with families. Families are always welcome to visit the FCTD's website at **www.fctd.info** to find organizations to work with and to learn more about assistive technology. See the Resource Section of this guide for more information about locating such centers and programs.

If possible, you should visit an assistive technology center with your child to see and try out various devices and equipment. Some AT centers offer a lending program that enables families to borrow devices for a trial period. Parents can seek out AT workshops, trainings, and conferences and there are many opportunities to learn about AT on the Internet as well.



Meet Trey...

Trey, now 8-years-old, was born with Down syndrome and numerous other health problems. He hasn't talked since he was born. Because Trey was unable to communicate his needs and wants he often became very frustrated and then acted out by yelling and throwing things. When Trey was 3 years old, his parents decided to have him evaluated by a communication specialist in their school district. The evaluation determined that Trey could benefit from having a communication device to help him express his needs and communicate with others, but she suggested a trial with a couple devices to find out which worked best for Trey and his family.

Lisa and Stephen, Trey's parents, were unfamiliar with communication technology, but the school specialist helped them learn about the different devices that they would try with Trey at home and at school. For several weeks the family tried a simple voice output device with six messages, which led the parents and the specialist to realize Trey's vocabulary would very quickly outgrow that particular device. In the end, they decided on a 32-message device with multiple recording levels. This product, called "Tech Speak," became Trey's first communication device. Soon Trey was able to activate buttons to form simple requests, such as "I want crackers."

"Finding the right technology for Trey is an ongoing process and not always easy. I encourage parents to try out different devices with their child at home and school before settling on one device. It's been invaluable for me to link up with a parent advocacy organization and support groups to learn about the technology available, but more importantly to learn advocacy skills that have helped me get the technology Trey needs."

-- Lisa, Trey's mother

The following pages describe a number of common assistive technology options in different goal areas. This is only a brainstorming list and is not intended to be comprehensive. Check the "Glossary" for any words and terms that are not familiar to you.

Aids for Daily Living

▸ Eating

___ Adapted utensils/plates
___ Arm support
___ Automated feeding

▸ Dressing

___ Velcro fasteners
___ Button hook
___ Dressing aids

▸ Recreation & Leisure

___ Adapted toys and games (*e.g., puzzles with handles*)
___ Battery interrupters and switches
___ Adapted sporting equipment (*e.g., Velcro mitt, lighted or beeper ball*)
___ Universal cuff to hold crayons, markers, paint brush
___ Modified utensils (*e.g., rollers, stampers, scissors*)
___ Articulated forearm support (*e.g., ErgoRest*)
___ Drawing/graphics computer programs
___ Music or games on the computer

▸ Home Living

___ Switch
___ Battery interrupter
___ Control unit
___ infrared sender / receiver
___ X-10 unit and peripherals

Studying/Reading/Math

▸ Learning /Studying

___ Print or picture schedule
___ Low tech aids to find materials (*e.g., color tabs, colored paper or folders*)
___ Highlight text (*e.g., markers, highlight tape, ruler*)
___ Voice output reminders for tasks, assignments, steps to tasks
___ Software for manipulation of objects/concept development (*e.g., Blocks in Motion, Thinking Things*)- may use alternate input device such as Touch Window
___ Software for organization of ideas and studying (*e.g., PowerPoint, Inspiration, ClarisWorks Outline*)

▸ Reading

___ Changes in text size/space/color/background color
___ Book adapted for page turning (*e.g. with page fluffers, 3-ring binder and folders*)
___ Use of pictures with text (*e.g., Picture It, PixWriter*)
___ Talking electronic devices for single words (*e.g., Reading pen, Franklin Bookman*)
___ Scanner with OCR and talking word processor
___ Electronic Books (*e.g., Start to Finish*)

▸ Math

___ Abacus, math line
___ Calculator/calculator with print out
___ Talking calculator
___ Calculator with large keys, large display
___ On-screen calculator
___ Software with cueing for math computations
___ Tactile/voice output measuring devices (e.g. clock, ruler)

▸ Alternate Computer Access

___ Keyboard with easy access or accessibility options
___ Word prediction, word completion, macros, abbreviation expansion to reduce keystrokes
___ Keyguard
___ Alternate mouse (*e.g., TouchWindow, trackball, trackpad, mouse pen*)
___ Mouse alternative with on-screen keyboard
___ Alternate keyboard (*e.g., Intellikeys, Discover Board, Tash*)
___ Mouth stick, head pointer with keyboard
___ Switch with Morse code
___ Switch with scanning
___ Voice recognition software and hardware

Composing Written Material

___ Word cards, word book, word wall
___ Pocket dictionary, thesaurus
___ Electronic dictionary/ spell check (*e.g., Franklin Spelling Ace*)
___ Word processor with word prediction (*e.g., Co:Writer or Word Q) to facilitate spelling and sentence construction*)
___ Multimedia software for production of ideas (*e.g., PowerPoint, Overlay Maker w/ talking word processor*)
___ Voice recognition software

▸ Mechanics of Writing

___ Pencil/pen with adapted grip
___ Adapted paper (*e.g., raised lines, highlighted lines*)
___ Slantboard
___ Typewriter
___ Portable word processor
___ Computer

Communication

___ Communication book / board
___ Eye gaze board
___ Simple voice output product (*e.g., Big Mack, CheapTalk, Talking Picture Frame*)
___ Voice output device with levels (*e.g., Macaw, CheapTalk with Levels, Dynavox*)
___ Voice output with icon sequencing (*e.g., AlphaTalker, Vanguard, Liberator*)
___ Voice output with dynamic display (*e.g., Dynavox, laptop with Speaking Dynamically*)
___ Device with speech output for typing (*e.g., LinkPLUS, Write:Out Loud with laptop*)

Transition

▸ Work/School to Work

___ Scheduling aids (*calendars, reminders, task analysis*)
___ Switch/device
___ Adapted keyboard
___ Communication aid
___ Keyboard emulator

▸ Adaptations

___ Adaptive seating/positioning
___ Electronic communication
___ Electronic organizers
___ Adapted computer input
___ Environmental control units

Section 2:
Assistive Technology in Schools

Assistive Technology in Schools

Assistive Technology in Public Education

Jonathan is a 5th grader with a physical disability that makes it difficult for him to write by hand. He does much better using a portable word processor that the school provides for him as part of his special education program. Jonathan uses the device to take notes in class and to complete all of his written work. He even takes it home with him to complete his homework assignments. The portable word processor has helped Jonathan keep up with his school work and maintain a B+ average.

The portable word processor is an AT device that Jonathan's Individualized Education Program (IEP) team determined was necessary for him to fulfill his educational goals. Without it he would not be able to keep up with the rest of his class and would be dependent on others to help him complete his school work.

Jonathan's story is a good example of how assistive technology at school empowers students with disabilities and encourages academic success. Unfortunately, it is not always easy to obtain the technology for school use, and parents may not know enough about AT devices and services to ask the right questions.

This section of the Family Information Guide provides resources and information about assistive technology for use in school. It discusses:

- Laws that require assistive technology to be considered for students receiving special education services
- How to work with the school to determine your child's AT needs
- Where to find information about AT devices and services for school use

There may be terms in this discussion with which you are unfamiliar, such as "least restrictive environment," "mediation," or "due process hearing." Please refer to the guide's glossary for definitions of these and other terms as they are used in the context of assistive technology.

Understanding the Law and Assistive Technology

It is important for parents to understand how laws impact their child's right to receive AT services at school. The **Individuals with Disabilities Education Act (IDEA)** requires public schools to make available to all "eligible" children with disabilities a "free appropriate public education" (FAPE). To determine if they are eligible for special education services, students must be evaluated. A parent, teacher or related service provider, such as a therapist, can ask for a special education evaluation. The school system must provide the evaluation at no cost to the family. If the student is found to be eligible, then special education services must be made available to the student at no additional cost to families. A family should not wait until a child is ready to enter first grade to begin the evaluation process. IDEA has two parts: Part B applies to children with disabilities from three to twenty two years old. Part C applies to infants and toddlers - from birth to three years old.

The law requires that public schools develop Individualized Education Programs (IEPs) for each eligible child with a disability. The specific special education services, including assistive technology, that are outlined in the IEP should reflect the individual needs of the student. IDEA requires that particular procedures be followed in the development of the IEP. Each student's IEP must be developed by a team of knowledgeable persons and must be reviewed at least once a year. The team usually includes the child's teacher, the parents, the child, if appropriate, a school system representative who is qualified to provide or supervise the special education services, and other individuals at the parents' or school's request. As their child's strongest advocate, families should insist, politely but strongly, that assistive technology be considered in the IEP process and that both AT devices and services - such as teacher training on AT equipment - be included in the written IEP if needed to recieve FAPE. When AT is included in an IEP it is the school's responsibility to make sure it is provided.

When AT is included in an IEP, it is the school's responsibility to make sure it is provided.

If parents disagree with the proposed IEP, they can request a due process hearing and a review from the state educational agency if applicable in that state. They also can appeal the state agency's decision to state or federal court. Read more about the IEP process on page 12.

You can find more information about IDEA and recent changes in the law at:

- http://www.ed.gov/offices/OSERS/Policy/IDEA/index.html — Department of Education
- http://www.cec.sped.org/law_res/doc/law/index.php — Council for Exceptional Children
- http://www.usdoj.gov/crt/ada/cguide.htm#anchor62335 — Department of Justice

Section 504 of the Rehabilitation Act is a federal civil rights law that prohibits discrimination against individuals with disabilities. Section 504 affects all programs that receive federal funds, including public schools. The law states that students with disabilities must be given the same opportunities to participate in educational programs and activities as students without disabilities, and the use of assistive technology may be considered as an accommodation. Therefore, even if a child does not meet special education criteria, it is sometimes possible to acquire needed devices through a 504 Plan. For example, a student with poor handwriting due to impaired fine motor skills may be given access to a computer to complete written assignments. Section 504 does not require school districts to develop an IEP for students. However, the district should document in a written 504 Plan what evaluations were performed and what decisions were made regarding the student.

You can find more information about Section 504 of the Rehabilitation Act at:

- http://www.section508.gov/index.cfm?FuseAction=Content&ID=12
- http://www.ataporg.org/itqa.asp

Your Child's Individualized Education Program (IEP) and Consideration of Assistive Technology

As mentioned above, IDEA requires that children with disabilities have an Individualized Education Program (IEP). The IEP is a written plan for educating a child with a disability. The IEP describes the educational program and services that the IEP team feels will meet your child's specific needs, such as school placement, services, and equipment.

A number of states have posted online guides to the IEP process. Examples include:

- Nebraska's *IEP Technical Assistance Guide*: http://www.nde.state.ne.us/SPED/iepproj/
- Wisconsin's *A Guide for Writing IEPs*: http://www.dpi.state.wi.us/dpi/dlsea/een/pdf/iepguide.pdf
- Massachusetts' *IEP Process Guide*: http://www.doe.mass.edu/sped/iep/proguide.pdf
- North Dakota's *IEP Planning Process*: http://www.dpi.state.nd.us/speced1/laws/iep/IEP_Guide.pdf
- New York's Guide to Quality IEP Development and Implementation: http://www.p12.nysed.gov/specialed/publications/iepguidance/IEPguideDec2010.pdf

Consideration of Your Child's Assistive Technology Needs

What does "consideration" of assistive technology mean? Although the process of "consideration" is not defined by the IDEA law, in general, it should be more than just checking a box on a form that states that the AT needs of your child have been considered. Although there is no single approach to considering your child's AT needs, most IEP teams will follow a process that takes the following steps:

1. Gather information about your child, his/her disability and abilities and ask the following questions.
   - ☐ What does your child need to do but is unable to do because of his/her disability?
   - ☐ What are your child's customary environments? These environments include the classroom, the playground, bus, music, gym, and lunch periods.

2. Share information gathered about your child. Parental input is very important and you should be actively involved in the process.

3. Remember that your child's preferences in areas such as color and style are important things to consider. Many parents tell stories of successful AT adoption that hinged on a child's sense that a particular piece of equipment was "cool." Likewise, a child may resist using a piece of equipment that he thinks is "nerdy" and sets him apart from the rest of his class. Children want to fit in with their peers, so a device that is less conspicuous than another might be preferred even if it has fewer "bells and whistles."

IDEA law and Assistive Technology

- ▶ Your child's assistive technology needs must be considered.
- ▶ If necessary, an AT evaluation must be performed
- ▶ AT devices and/or services must be provided by the school system if identified in the child's IEP.
- ▶ Training of teachers, aides, and the student may be listed in the IEP as "AT services"

4. Make a list of the child's needs, environments, and tasks, and prioritize your child's biggest educational challenges, such as communication, mobility, reading, writing, or behavior issues.
Questions to discuss with the IEP team:
- ☐ What are the biggest challenges for my child?
- ☐ Which challenge should we focus on first?

5. The IEP team brainstorms possible solutions to your child's main goals.
Questions to ask include:
- ☐ What assistive technology tools are available to help my child overcome these challenges?
- ☐ What criteria will be used to determine if the AT has been successful in reaching the agreed-upon goals?

6. After listing possible AT tools that the team thinks might help your child achieve her goal, the team needs to decide which device they will try first. Sometimes a number of different AT tools will need to be tried before an appropriate one is found for your child.
The IEP team should discuss:
- ☐ What are the specific features of the AT device that can help your child?
- ☐ What tools are readily available from the school, the district or a loan library?
- ☐ Who will need to be trained to get maximum benefit from the AT device or service? What are the sources of training?

The term "assistive technology" may never appear on the IEP forms used by your child's school. Instead, the form may use terms such as "accommodations, supports, program modifications, or supplementary aids and services."

No matter what form is used by the IEP team in your child's school, the team is required by law to consider your child's need for assistive technology.

7. After deciding upon a device to try, the IEP team needs to acquire the device for the student to experiment with. Some schools have access to libraries of technology that are shared among schools or districts.

During the trial period with the device, IEP team members need to collect data about the child's use of the device.
Questions to ask include:
- ☐ How often did the child use the device?
- ☐ Did it help him do something he could not do before?
- ☐ How was success with the device measured?

Sometimes a child may need to experiment with several devices before the team can decide which device has the features your child needs. After trying different devices and collecting data about which device worked best for the child, the IEP team should come to a conclusion about which device is most appropriate for the child.

- ☐ At the end of the consideration process, the IEP team should decide whether or not the assistive technology would benefit your child.
- ☐ **It is important to document in writing that the IEP team considered AT and if so, what AT devices and services are most appropriate for the child. Assistive technology devices and/or services must be provided if required in the child's IEP.**

Keep in mind that even if your child does not require assistive technology at the moment, he or she may benefit from using it in the future. Therefore, the law requires that your child's AT needs be considered continually as long as your child has an IEP. More information on the general IEP process is available through the National Dissemination Center for Children with Disabilities (NICHCY) at http://nichcy.org/schoolage/iep. The Parent Advocacy Coalition for Educational Rights (PACER Center) also has tips on making the IEP process successful at http://www.pacer.org/parent/iep.htm.

Obtaining a Formal Assistive Technology Evaluation for Your Child

If the IEP team is unable to determine what AT devices and services are best for your child, then a formal AT evaluation may be needed. The evaluation should be performed by a qualified professional in a timely fashion. This may present a problem, as there is a shortage of qualified AT evaluators in many areas of the country. The school system may choose to use its own personnel to conduct the evaluation, but if parents disagree with the recommendations, they have the right to an independent evaluation at district expense. Be aware, however, that parents may have to assume the cost of an independent evaluation if the results do not differ from the one provided by the school system and if the system can show that the original evaluation was appropriate.

Disagreeing with the school about assistive technology

You have the right to disagree with the school's decisions concerning assistive technology. Some situations in which parents and school personnel should meet to resolve disagreements include when:

- You disagree in writing with the IEP
- You believe your child is not receiving appropriate assistive technology devices and/or services
- You think additional devices and/or services are needed

When differences arise, try to resolve them informally first. If you can't work out a solution that is satisfactory, you can take more formal steps to reach a satisfactory resolution. The procedures for taking more formal action vary from state to state, but may include mediation, a due process hearing, or filing a formal complaint with the state.

You can get state-specific information from the Consortium for Appropriate Dispute Resolution in Special Education (CADRE) at http://www.directionservice.org/cadre/index.cfm. You can also contact a Parent Training and Information Center, a Parent Advocacy Center, a Tech Act Center, or an Alliance for Technology Access Center (in some cases, these will be the same organization). For contact information, you can use the Family Center's searchable database. Click on your state and "information center" and/or "advocacy center."

Sample Search

Search Member Organizations

States: Check all that Apply

- ☐ All States

☐ Alabama	☐ New Mexico
☐ Alaska	☐ New York
☐ Arizona	☐ North Carolina
☐ Arkansas	☐ North Dakota
☒ California	☐ Ohio
☐ Colorado	☐ Oklahoma
☐ Connecticut	☐ Oregon
☐ Delaware	☐ Pennsylvania
☐ Florida	☐ Rhode Island
☐ Georgia	☐ South Carolina
☐ Hawaii	☐ South Dakota
☐ Idaho	☐ Tennessee
☐ Illinois	☐ Texas
☐ Indiana	☐ Utah
☐ Iowa	☐ Vermont
☐ Kansas	☐ Virginia
☐ Kentucky	☐ Washington
☐ Louisiana	☐ Washington, DC
☐ Maine	☐ West Virginia
☐ Maryland	☐ Wisconsin
☐ Massachusetts	☐ Wyoming
☐ Michigan	☐ American Samoa
☐ Minnesota	☐ Federated States of Micronesia
☐ Mississippi	☐ Guam
☐ Missouri	☐ Marshall Islands
☐ Montana	☐ Northern Mariana Islands
☐ Nebraska	☐ Palau
☐ Nevada	☐ Puerto Rico
☐ New Hampshire	☐ U.S. Virgin Islands
☐ New Jersey	☐ International

Organization Types: Check all that Apply

- ☐ All Organization Types

☐ Advocacy and Law	☐ Parent/Family Support
☒ Assistive Technology	☐ Private Sector Companies
☐ Disability/Disorder Specific	☐ Schools and School Districts
☐ Federal Agencies	☐ State and Local Agencies
☐ General	☐ State and Local Organizations
☐ Independent and Community Living	☐ United Cerebral Palsy Affiliates
☐ Information Centers	☐ University-Affiliated Programs
☐ National Organizations and Associations	

Disability Categories: Check all that Apply

- ☒ All Disabilities

☐ ADHD/ADD	☐ Hearing Impairments / Deaf
☐ Apraxia of Speech	☐ Learning Disabilities
☐ Autism	☐ Leukemia
☐ Bipolar Disorder	☐ Mental Health Impairments
☐ Brain Injury and Stroke	☐ Mental Retardation
☐ Cerebral Palsy	☐ Mobility Impaired
☐ Communication and Speech	☐ Multiple Disabilities
☐ Cystic Fibrosis	☐ Multiple Sclerosis
☐ Deaf / Blind	☐ Muscular Dystrophy
☐ Developmental Disabilities	☐ Neurological Disorders
☐ Dyslexia	☐ Orthopedically Impaired
☐ Epilepsy	☐ Spina Bifida
☐ General / Non-disability Specific	☐ Tourette Syndrome
☐ Health Impairments	☐ Visual Impairment / Blind

Submit Search | Reset

Sample Results

Search Results

Your search returned 43 results

- AbleNet, Inc.
- AbleProject
- Access Ingenuity
- Adaptive Computer Empowerment Services
- Alliance for Technology Access (ATA)
- American Thermoform Corporation (ATC)
- Assistive Technology of Minnesota
- A.T. KPATTER and Company: Technology and Service for People with Disabilities
- AT Network
- California Department of Rehabilitation-Sacramento District
- California State University Northridge: Center on Disabilities
- Center for Accessible Technology
- Closing the Gap
- Community Research for Assistive Technology
- CompuMentor
- Computer Access Center
- Courage Center
- Disabled Resources Center, Inc.
- Discapacitados Abriendose Caminos
- DRAIL (The Disability Resource Agency for Independent Living)
- Equal Access to Software and Information (EASI)
- Family Resource Library and Assistive Technology Center
- Heads Up - The Flexible Head Support System
- Loving Your Disabled Child
- Midwest Center for Postsecondary Outreach
- Minnesota Department of Children, Families and Learning: Special Education
- Minnesota Special Education Mediation Services
- Minnesota Star Program
- Northeast Regional Resource Center
- Pacific Americans with Disabilities Act and Accessible Information Technology Center
- People Achieving Change Through Technology (an Ability Building Center Program)
- Project LITT (Literacy Instruction Through Technology)
- SACC Assistive Technology
- Sacramento Center for Assistive Technology
- Sensory Access Foundation
- Shane's Inspiration
- STAR (System of Technology to Achieve Results)
- Sweetwater Union High School District: Student Support Services
- Technical Assistance Alliance for Parent Centers
- The Rehabilitation Engineering Program at Rancho Los Amigos National Rehabilitation Center
- Tripod Captioned Films
- Western Region Outreach Center & Consortia
- Willow Tree Teaching Tools

Family Resource Library and Assistive Technology Center

1000 South Fremont Ave.; Suite 6050, Unit 35
Alhambra, CA 91803
Phone: (626) 300-9171 (562) 906-1141
Fax: (626) 300-9164
http://www.elafrc.org/
For more information, contact Juanita at info@elafrc.org

The Family Resource Library and Assistive Technology Center is committed to empowering individuals with developmental disabilities and their families by providing support, information and training in a way that is family centered and culturally sensitive. It is the vision of the center to give individuals the tools necessary for the challenge of life long learning, growth and personal development. The center will provide leadership and education to foster inclusion and acceptance of individuals with disabilities.

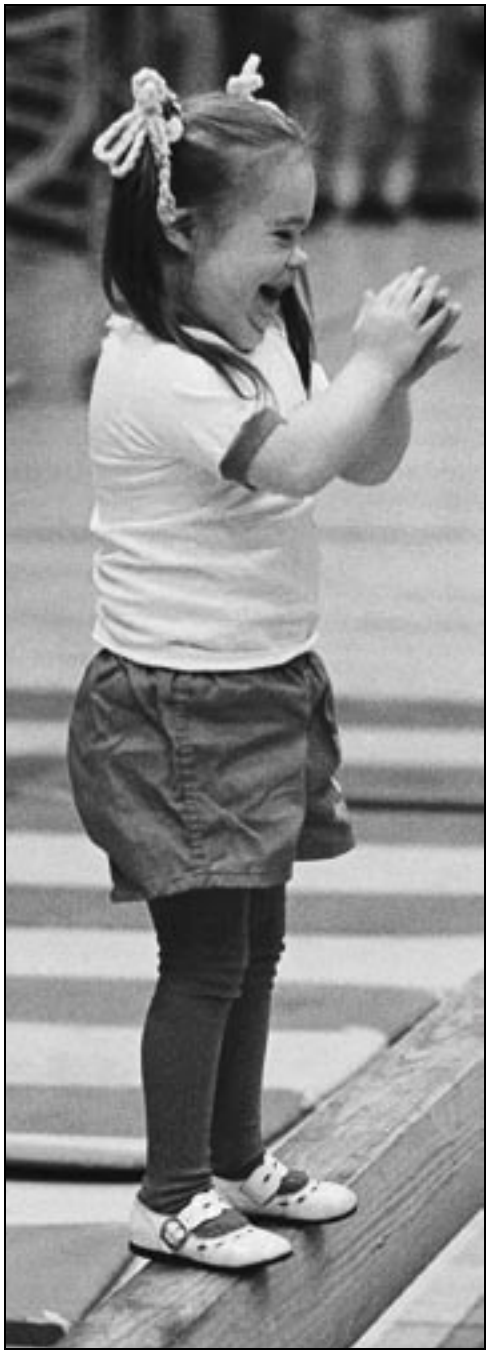
A Parent's Perspective

"I thought my son Jared, who is blind, would benefit from a computer at school equipped with a screen reader so he could go to the computer lab to do Web-based assignments and other homework with his classmates. I called the school to set up an IEP meeting to discuss the idea with the team. When we met, Jared's teachers agreed that a screen reader could help Jared access online curricula and participate in group projects, but they weren't sure which one was the best. As a team, we decided that Jared should have an assistive technology evaluation to identify the most appropriate AT for his needs.

The evaluation was performed a month later by a vision specialist within the school district. The specialist suggested that Jared try two different programs over a two-month period to find out which one worked best for him. I was very glad to see that the specialist wanted Jared's input in the decision. Jared was trained by the vision specialist to use both of the programs over the next few months.

At the end of the trial period it was clear which program worked best for Jared. The IEP team agreed and the school purchased the software and made it available to Jared in the computer lab. Jared also received additional training from the vision specialist on the software until he could use it independently.

The process took a lot longer than I hoped it would, but in the end, I was very happy that Jared had the assistive technology he needed and would no longer be left out of computer activities at school."



Section 3:
Funding Assistive Technology

Funding AT

Assistive technology may unlock the door to your child's potential, but actually getting the technology may not be easy. It takes persistence to find the appropriate equipment and services and to figure out ways to pay for them.

As a parent, you have a much better chance of getting what is needed if you and your child are involved in selecting the technology and planning for its use. While acquiring funding can be a lengthy and challenging process, there are funding sources available to help pay for AT devices and many tools and resources that can make the funding process easier. Often, assistive technology is paid for by large programs, such as special education or medical insurance. Many parents, through persistence, assertiveness, and imagination have found funding in other creative ways as well.

The goals for the technology will determine the selection of equipment and prioritizing of potential funding sources. You will find it useful to begin collecting information on all potential sources, as early as possible. Generally speaking, funding sources can be organized according to their criteria, which may include:

- The individual's purpose for using the technology (such as vocational, educational, communication, medical care, or quality of life and independent living)
- The nature of the equipment
- The individual's age
- Location - many foundations focus on specific states, cities, and communities
- Financial circumstances

Companies that sell AT devices may be an excellent source of funding information. Often such companies produce funding guides and/or have funding specialists on staff to work with you.

Government Funding for AT

Special education, vocational rehabilitation, and Medicaid are the three largest government programs through which many children and adults qualify for AT devices and services. The services and funding provided by these programs are available to those who meet the programs' specific eligibility requirements. Saying someone is entitled to services, however, is not saying what those services will be. Services vary according to decisions made by individual states in implementing the program, availability of funds, and individualized assessments of need and potential. For example,

your child might be receiving Medicaid but may not be entitled to a particular medical procedure unless your state provides it and it is deemed "medically necessary."

Many funding programs use "means testing," which is a way of determining eligibility for a program or service based upon income, resources, or other measures of individual or family economic status. Within the means test, however, some things may be exempt (they can not be counted as part of your family's resources). Until you know exactly what goes into a particular agency's calculations for the means test, you should assume you are eligible.

Meet Michael...

Michael is a typical 11-year-old boy who loves fishing and listening to the Back Street Boys. Michael also has cerebral palsy and has multiple needs for assistive technology to help him communicate, participate at school and just have fun.

It's been a long haul to select and fund the right technology for Michael's complex needs. Michael first tried a computer at a local technology center when he was just 4 years old; he's now 17. For the last couple of years, Michael, his family and school have been trying and evaluating different systems with the potential to help him. They finally settled on a specific computer from a national, online vendor. Michael uses proximity switches on his electric wheelchair to operate the computer with his head. His mom, Cathy, did much of the research to find the system. She talked with professionals, explored information via the Internet, and tried equipment at workshops and conferences.

Funding the equipment was the family's big challenge. Michael's system cost approximately$14,000, including the computer, software, mounting system, and switches. The Mannings were able to obtain funding for the computer, software, and wireless Internet access through Michael's Home and Community Based Waiver*. The family also explored using their private health insurance, which would pay for part of the device because Michael uses it to communicate. Cathy recommends taking the time necessary to select and try technology before applying for funding. She said the equipment trials really allowed Michael to learn the system, so she and the school could make an educated evaluation. It normally takes a year to apply for waiver funds, so being sure about your technology choices is critical.

*Traditional Medicaid is a durable medical equipment reimbursement program and waivers can provide for the broader range of AT options which might include home modifications or other things outside the traditional Medicaid program. Waivers are determined for specific disabilities (i.e., mental retardation, developmental disabilities, autism) as determined by an individual state. Services can be identified within a waiver plan that go beyond the traditional Medicaid services provided in a state. Assistive technology can be considered one of these reimbursable AT devices and services.

Special Education

As noted in Section 2, a Federal law, the **Individuals with Disabilities Education Act (IDEA)**, states that students with disabilities are entitled to a "free and appropriate public education" (FAPE). To meet the law's requirements, many schools created special education programs. It is through these programs that children with disabilities may be eligible for assistive technology funding.

The first step in the process of qualifying for special education is for a child to be referred for screening and evaluation. Anyone can initiate the referral, but it's usually started by a parent, teacher, or related service provider, such as a therapist. Based on the results of the screening and evaluation, a decision is made about the need for special education services. If a child qualifies, an Individualized Education Program (IEP) team convenes to determine the needs of the child, including school placement, services, and AT equipment. The IEP team members include the child's parents, at least one teacher, who may be a general or special education teacher, at least one administrative staff person, and the child when appropriate. In the IEP, the team documents the child's needs and establishes a plan for working toward agreed-upon educational objectives. If the IEP team meets to plan post-high school transition, the child must be present at the meeting.

Parents are IEP team members. Students are invited to participate during the transition process or as soon as they are able, and their opinions should be sought. Parents and students have important rights in the process, including the right of participation, the right to have experts of their own choosing at the IEP conference, the right to administrative appeal, and even the right to court appeal if they are dissatisfied with the school administration's decision.

Every child with an IEP must be considered for AT devices and services. If the IEP team determines that AT is needed for the child to receive a "free and appropriate public education," it must be provided by the school district. The school may use non-school funding sources, such as a supplemental grant; however, the school is ultimately responsible for providing the documented AT, including services and aids, whether or not they find additional funding.

In some cases, parents may prefer to purchase an AT device for their child at their own expense, especially if it is required for around-the-clock use, such as a wheelchair or hearing aids. Families may seek AT from Medicare, private insurance companies, vocational agencies, and charitable organizations. If the parent pays for any portion of a device written into the IEP, even if the school pays for most of it, then the device belongs to the student. Even if the parents purchase the device for their child, if the child needs it in order to receive a free and appropriate education, then the school must pay for repairs and maintenance.

504 Plans

Section 504 of the Rehabilitation Act is described on page 12. Just as AT must be specified in an IEP, it must be listed in a student's 504 Plan in order for the school to be responsible for providing it.

Medicaid

Medicaid was established under Title 19 of the Social Security Act and is administered by state agencies. Medicaid is a national program of medical assistance for individuals "whose income and resources are insufficient to meet the costs of necessary medical services." Medicaid will purchase, rent, or lease various types of assistive devices for Medicaid beneficiaries as "durable medical equipment (DME)" if the devices are considered medically necessary. Generally that means the equipment must be:

- prescribed by a physician
- used to restore or approximate normal function of a missing, malfunctioning, or malformed body part
- directly related to a diagnosed medical condition
- expected to provide a therapeutic benefit

Medicaid does have appeals processes, both for ineligibility determinations and for decisions relating to the scope of services. Appeals can take time, but usually must be completed within 30-60 days. The process and timeframe guidelines can be obtained from your state's Medicaid office. To get contact information for your state Medicaid office and other information relevant to the application process in your state, visit the Centers for Medicare and Medicaid Services website at: www.cms.hhs.gov/states.

Medicare

Many people think of Medicare as a federally funded health insurance program that is only for Americans over 65 years old. However, Medicare also provides insurance to many children and adults with severe disabilities. The program has two parts: Part A- Mandatory Hospital Insurance and Part B- Optional Medical Insurance. It is Part B that may pay for all or a portion of your child's AT devices if they qualify as "durable medical equipment." As with Medicaid, to qualify, an AT device must be considered medically necessary. Your child's doctor must prescribe a specific device and it must be supplied by a Medicare-approved provider.

An excellent, comprehensive reference is *Medicare Funding of Assistive Technology*, a guide written in 2004 by Neighborhood Legal Services, Inc. and the Arizona Center for Disability Law. It can be found online at http://209.203.251.64/conf2006/medicare%20funding.htm.

If you are denied funding upon your initial request, realize that denial does not need to be the end point. In fact appealing funding decisions is quite common. Many appeals for funding of assistive technology are successful.

Other AT Funding Sources

In addition to the programs above, there are many local, state, and private sources that fund assistive technology, including:

- **Community Service Organizations**
  In many communities, service, religious, or fraternal organizations, such as the Elks and Lions, provide equipment directly to individuals in particular circumstances. Small, case-by-case grants of this sort are hard to categorize, but they tend to hinge on the applicant's ties to the community. They do not necessarily reflect how the organization will distribute funds in the future. When the need is critical or time sensitive, service organizations, which have more flexibility, may offer the best options.

- **Foundation Support**
  Many foundations address disability-related needs on an ongoing basis. Foundations, however, are far more likely to give grants or loans to organizations rather than to individuals. When their work does extend to individual recipients, higher education, followed by medical care and disaster relief are usually the priorities. Think of these restrictions as creating opportunities. For example, by working with a consumer organization, donors might create an equipment lending center, from which more than one person can benefit. When "access" to technology, rather than its possession, will meet the need, you may find foundations more likely to provide funding. A number of directories of foundations and corporate donors, such as the *Foundation Directory* by the Foundation Center, can be found in many public libraries.

- **Commercial Loans**
  Commercial credit is becoming more widely available for the purchase of AT. Loans may be available through traditional lending institutions, consumer and membership groups, nonprofit organizations, or joint efforts between device vendors and banks.

  Fourteen states have received federal funding to establish financial loan programs for individuals with disabilities to purchase assistive technology. The states include Arizona, Arkansas, Florida, Illinois, Kentucky, Louisiana, Maryland, Michigan, Nevada, Oklahoma, Pennsylvania, Utah, Virginia, and Wisconsin. Many other states are independently supporting such programs. (See the Resources section for the location of the Tech Act program in your state.)

- **Private Insurance**
  Private insurance comes in many forms and is still largely unregulated when it comes to assistive technology. Although insurance companies do purchase some AT, insurance plans and policies are often silent about exactly what technology is covered. As with Medicare and Medicaid, technology and services must be medically necessary in order to be covered by these plans.

  While a typical insurance policy will cover dependent children only through a certain age or until they complete college, many policies have special provisions to cover adult disabled children indefinitely. Check with your employer's benefits department regarding company policy on covering dependents.

Developing a Funding Strategy

Parents will find it useful to begin collecting information on all potential sources as early as possible. The chances of persuading people or organizations to provide funding increase with the parents' ability to meet their criteria, to follow their procedures, and to use their language. Parents should research potential funders thoroughly. Funding sources will have different and sometimes complex selection criteria that should be carefully reviewed.

- ☐ Research technology and funding options on the Internet or at a local information center. Make a list of the opportunities that you want to pursue first, second and third. In many instances, particularly when several components are involved, funding will not come entirely from one source or all at one time. Components may include a computer and peripherals such as printers, an alternative keyboard and software.

- ☐ Make a budget of all your family's expenses. This will help you determine what funds you can put toward the purchase of a device and help you determine if you will seek loans or grants.

- ☐ Gather your family's income documentation, such as a copy of your W2 tax statement. Your income may be an eligibility requirement and being aware of your financial situation will help you make the strongest possible case for funding.

- ☐ Identify people in your life who can help you with the funding process, such as friends, relatives and co-workers. They may have organizational contacts or valuable proposal writing skills. Share with them your goals and keep them up to date on your progress.

- ☐ Keep good records of your funding progress. Use a notebook and folder to keep funding and AT-related information in one place. This will be especially useful if you are working with more than one potential funder or if you need to appeal a case.

Your funding plan should both identify and prioritize potential resources so that you can approach them in the most appropriate order. Establishing an order of approach is important because a number of sources consider themselves "payers of last resort," meaning they won't pay until all other sources have either agreed or refused to fund. It is therefore critical to document the results even when denied funding.

The language you use with different funding sources should reflect the orientation of the source.

- ► Medical. In medical settings, stress the therapeutic nature and "medical necessity" of the equipment.
- ► Educational. In educational settings, the technology needs to help a child achieve academic and educational goals.
- ► Vocational. In vocational settings, the goal and potential for self-sufficiency are crucial elements. Again, it is important to research and understand the language preferred by the potential funder.

The cost of the AT device is important to many funders, so naturally, opportunities to cut costs should be explored. As parents, you should think of your child's AT needs not in terms of a specific model of a certain device, but in terms of the functional abilities you are trying to make available to your child.

Section 4:
Quick Questions & Tips

Quick Questions & Tips

Quick Questions

Where can I learn more about the range of assistive technology devices and services that might help my child?

Ask the professionals who work with your child at school about assistive technology options and resources. Many of the Alliance for Technology Access (ATA) community technology centers offer hands-on learning opportunities through demonstration and equipment loan programs. Contact information for 37 ATA centers is available at http://ataccess.org/index.php/reading-room/centers or from the main office at (707) 778-3011.

In every state there is at least one Parent Training and Information Center (PTI) and/or one Community Parent Resource Center (CPRC) that provide families with a range of disability-related information and support, including AT information. Contact information for the PTI/CPRC network can be found at www.taalliance.org/Centers/index.htm.

The Family Center on Technology and Disability offers a database of articles, guides, websites, videos and other AT materials that is searchable by subject and disability. We also provide a database of AT organizations (including PTIs, CPRCs and ATA centers), many of which provide hands-on and/or web-based information on the range of AT options. Both can accessed at: www.fctd.info or request a copy of our AT Resources CD-ROM by calling (202) 884-8068 or emailing fctd@aed.org.

Commercial organizations that provide product-specific information include ABLEDATA, AbleNet, and EnableMart. A non-profit site that offers a great deal of product information, searchable by function and product type is assistivetech.net. Contact information for all of these organizations is listed in the Resources section.

Are schools required to provide assistive technology for every child with a disability in a special education program?

The special education program is administered under the Individuals with Disabilities Education Act (IDEA), which requires that school systems provide students with disabilities a "free and appropriate public education (FAPE)." If an AT device or service is determined to be necessary to meet a student's educational goals, and is documented in the student's Individualized Education Program (IEP), the school district is required to provide it for the child at no expense to the parents.

Can parents ask the school for a formal assessment of their child's assistive technology needs for school?

Yes. An evaluation of AT needs may be part of the overall evaluation that a school system conducts to determine a child's eligibility for special education services or it may be part of a subsequent evaluation conducted as part of the IEP process. If an assessment of AT needs has not been included in such evaluations, parents have the right to request a specific AT assessment. The school system may use school personnel to conduct the assessment or it may contract with an independent professional. If parents disagree with the assessment obtained by the district and the district fails to show that the evaluation was appropriate, parents have the right to request another, independently-conducted AT assessment, at school expense. However, if the second assessment agrees with the one provided by the school system, parents may be liable for the cost of the second assessment.

Can my child use assistive technology purchased by the school at home?

On a case-by-case basis, the use of school-purchased AT devices in a child's home or in other non-school settings is permitted if the child's IEP team determines that the child needs access to those devices at home in order to receive a free and appropriate education.

If the school pays for an AT device, to whom does it belong?

If the school pays the entire cost of an AT device, then the school owns the equipment. If a parent pays for any portion of the cost of the equipment, then the family owns the device. Regardless of who owns the equipment, if it is required for the student in order to get a free and appropriate public education and is written into the IEP, the school is responsible for repairing or replacing it if needed.

Can my family get help with funding AT devices and services?

Options for funding assistive technology vary from state to state and family to family. Ask the professionals who work with your child about different funding options that apply to your situation. Common funding sources for families include private insurance, state and federal programs, community organizations and nonprofit agencies. Most funding sources have their own specific requirements. Success in securing funding is frequently dependent on the applicant's ability to address each agency's unique requirements in a funding request. Refer to the Funding section of this guide for information about school, government, and organizational sources of funding.

My child is in a private school. Will s/he have access to assistive technology?

This can be a little complicated as it depends on a number of variables. Children with disabilities who are placed by their parents in private schools are entitled to special education services but at a cost that is limited to a proportionate share of federal IDEA dollars. So if 10% of a district's school children attend private school, then 10% of its special education budget must be spent on those private school students. If the district places a child in a private school, then the district is responsible for 100% of the cost of AT devices and services that have been specified in the child's IEP. However, there are a number of exceptions to this rule, so parents are advised to get advice from a knowledgeable source before assuming that AT will be provided by the public school system.

What can parents do if the school doesn't provide the assistive technology documented in the IEP?

If the school is not providing the AT devices and/or services written in your child's IEP, then you may choose to take further action. When differences arise, try to resolve them informally first. If you can't work out a solution that is satisfactory, you can take more formal steps that may involve mediation, a due process hearing, or filing a formal complaint. A variety of sources of information about mediation and due process are included in this guide.

Quick Tips from Parents Who Have Been There

The Big Picture

- Make the effort to keep up with new technology developments by attending conferences and workshops, joining an AT listserv, or finding AT resources in your community.
- Start preparing for your child's future technology needs well in advance. For example, start planning for high school and college while your child is still in grade school.
- Talk with other children and adults who use assistive technology, not just professionals, to gain a user's perspective.
- Try out different devices in your child's typical environments, such as school and home, before settling on one device.
- Participate in a parent advocacy organization or parent support group to learn advocacy skills and to find additional information resources.
- The Internet is a good tool for learning about assistive technology and locating funding resources. Skillful use of search tools, such as Google and Yahoo, can produce a wealth of information. If you do not have Internet access or feel limited in your use of search tools, try your local library. An increasing number of libraries make Internet use available and resource librarians can offer assistance in targeting your search. Also make use of the Family Center's online databases at www.fctd.info, as all materials have been reviewed by AT professionals and blurbs are provided.
- Acquiring assistive technology is an ongoing process. Your child's AT needs will change as s/he grows, physically, cognitively, and emotionally.
- No assistive technology is perfect. Even so, it opens doors to inclusion and independence and is worth the effort.

Communicating Effectively with Your Child's School

- Keep in touch with your child's teachers through frequent telephone calls, notes, or personal visits. Talk with them about what your child does well and how your child learns best. Ask questions about anything you don't understand.
- Attend all meetings concerning your child's education. Take notes and be an active, interested parent.
- Be a good listener. Encourage the staff to keep you informed about your child's progress, relationships with other children, and any problems or concerns they may have. Listen to their professional opinions about your child. Remember that school personnel can also be good advocates for your child!
- When differences of opinion arise, talk about them. Look for ways to reach a solution, but keep your child's needs uppermost in your mind.

Advocating Effectively for Your Child

- Know your rights.
- Make notes on telephone conversations and meetings.
- Date and save all notes, report cards, IEPs and notices from the school regarding your child's education and progress.
- Jot down questions you want to ask or information you want to share before you attend meetings.
- Put all requests in writing and keep copies of all correspondence.
- Ask your child for information and include the child in meetings whenever possible. Help your child become an effective self-advocate.
- Meet other parents of children with disabilities – if there isn't an active parent group in your area, organize one.

Section 5:
Glossary of AT Terms and Definitions

It is important for parents to understand the "language" of assistive technology so they can be informed advocates for their child's technology needs. The following glossary of terms can help parents learn about the kinds of assistive technologies that are currently available and how they can be used.

A

Access Utility:
An access utility is a software program that modifies a standard keyboard to simplify operation of the keyboard, replace the mouse, substitute visual cues for sound signals, or add sound cues to keystrokes.

> Example: In the case of a young person with a mobility impairment, an access utility is important because it can alter the way keys on the keyboard respond to touch. For example, Jimmy, a young boy with muscular dystrophy, has difficultly pressing the keys quickly; he lingers a bit longer on each key than necessary, or inadvertently presses multiple keys instead of the intended key. Altering the relay time on these keys can enable Jimmy to process information more effectively when using his keyboard.

Many basic modifications can be made through software that already exists on your computer. Altering font size, color contrast, and adding or modifying audio alerts can all be done without purchasing additional software. "Sticky keys" are another very useful modification tool that can be made using pre-existing software. Sticky keys allow the individual to type one key at a time, sequentially, and experience the same results as holding down multiple keys simultaneously. For example, instead of holding down CTRL-ALT-DELETE at the same time, the individual can select each key, one at a time.

Photo courtesy of Freedom Scientific

Additional Resources:
http://www.ataccess.org/resources/atabook/s02/s02-03b.html

Accommodation:
In the context of education, an accommodation is a change in the format or presentation of educational materials so that a student with a disability can complete the same assignment as other students. Accommodations can also include changes in setting, timing, scheduling, and/or response mechanisms of tests. Accommodations include: audiotapes of textbooks, tape recorders for capturing classroom lessons, calculators, allowing a student to submit an illustration of key concepts rather than a written report, providing reproduced copies of textbook pages that can be marked up and highlighted, and assignment of a "study buddy" or notetaker. There are dozens of accommodations that can change a student's experience from frustration to success if teachers, aides, and parents are creative. A long list of possible accommodations is provided by The Families and Advocates Partnership for Education (FAPE) and can be viewed on their website at http://www.fape.org/.

Activities of Daily Living:
Activities of Daily Living (ADL): Frequently used in national surveys as a way to measure self-care abilities in daily life, ADLs include basic tasks such as eating, bathing, dressing, toileting, getting in and out of a chair or bed, and getting around while at home. National surveys also measure another level of self-care functioning, Instrumental Activities of Daily Living (IADLs), which include activities such as doing everyday household chores, preparing meals, conducting necessary business, using the telephone, shopping, and getting around outside the home.

Adaptive Technologies:
Adaptive technologies are a type of assistive technology that include customized systems that help individual students move, communicate, and control their environments. Adaptive technologies are designed specifically for persons with disabilities; these devices would seldom be used by non-disabled persons. Examples include augmentative communication devices, powered wheelchairs and environmental control systems. These assistive technologies are not used exclusively for education purposes, and can be used in all of the child's environments.

Aids for Daily Living:
Another category of assistive technology, these self-help aids help people with disabilities eat, bath, cook and dress.

Example: A wide range of devices fall under the phrase Aids for Daily Living (ADLs). A "low tech" example would be a finger nail brush with two suction cups attached to the bottom that could stick onto a flat surface in the bathroom. Such an ADL would allow a child with limited mobility to clean her nails without having to grip the brush. There are also "higher tech" ADLs. For more information on these devices, see Environmental Control Units (ECUs).

Photo Courtesy Alitons

Photo Courtesy Grip Advantage

Alternative Access/Input Device:
An alternative access/input device allows individuals to control their computers using tools other than a standard keyboard or pointing device. Examples include alternative keyboards, electronic pointing devices, sip-and-puff systems, wands and sticks, joysticks, and trackballs.

Photo Courtesy Don Johnston

Example: A "modified mouse" such as a joystick or trackball can make a world of difference to a child with limited mobility. While using an ordinary mouse would be difficult for someone with limited refined motor skills, the design of a joystick would allow him to have more complete contro of his Web surfing experience.

Photo Courtesy of Aroga

Alternative Keyboard:
Alternative keyboards may be different from standard keyboards in size, shape, layout, or function. They offer individuals with special needs greater efficiency, control, and comfort.

Example: Alejandro is a child with cognitive disabilities. The traditional QWERTY keyboard is confusing, so his mom replaces it with a keyboard that lists letters A-Z in big, bold letters and doesn't contain a lot of "extra" keys. This makes focusing on spelling and typing words a lot easier for him.

Photo Courtesy of Big Keys

Ambulation Aids:
Devices that help people walk upright, including canes, crutches, and walkers.

Americans with Disabilities Act:
The American with Disabilities Act of 1990 (PL101-336) prohibits employers from discriminating against people with disabilities and makes such discrimination a civil rights violation. Providers of public services, schools, public buildings and public transportation services also must provide accessibility to people with disabilities.

Architectural Adaptations
Architectural adaptations are structural fabrications or remodeling in the home, work site, or other area. Examples that remove or reduce physical barriers for an individual with a disability include ramps, lifts, lighting, altering counter top heights and widening door frames.

Articulated Forearm Support:
An articulated forearm support follows the user's movements and drastically reduces the muscle work involved in sustained keying or mouse use.

Assistive Technology Device:
An assistive technology (AT) device includes any item, piece of equipment, or product system that is used to increase, maintain, or improve the functioning of individuals with disabilities. It may be purchased commercially off the shelf, modified, or customized. The term does not include a medical device that is surgically implanted, or the replacement of such a device.

Example: Almost every example in this glossary is an example of an AT device. From low tech, such as a pen or pencil grip; to high tech, such as a computer that responds to touch and allows a child to communicate more effectively, the tools fall within the category of AT devices.

Photo Courtesy of IntelliTools

Assistive Technology Service:
An assistive technology service is one that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device. Examples include evaluating, selecting, buying, designing, fitting, customizing, maintaining, repairing, replacing, coordinating, and training of students, teachers and family members.

Augmentative Communication System:

An augmentative communication system is any system that increases or improves communication of individuals with receptive or expressive communication impairments. The system can include speech, gestures, sign language, symbols, synthesized speech, dedicated communication devices, microcomputers, and other communication systems.

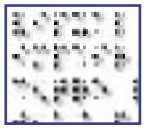
Photo Courtesy of Mayer-Johnson

Auxiliary Aids and Services
Under the Americans With Disabilities Act (see definition above), professionals and organizations must communicate as effectively with people with disabilities as they do with others. Auxiliary aids and services assist in this effort. Auxiliary aids may include taped texts, interpreters or other effective methods of making materials usually delivered orally available to students with hearing impairments; readers in libraries for students with visual impairments; classroom equipment adapted for use by students with manual impairments; and other similar services and actions.

B

Battery Interrupter:
A battery interrupter allows the user to modify battery-operated devices for switch input. Simply place the battery interrupter between the battery and its connection point in the battery compartment. Make a notch in the compartment lid allowing the cord to pass through when it is closed and then secure the lid. Place the battery-operated device in its ON position. Plug your switch into the input jack of the battery interrupter and you're set.

Braille:



A raised dot printed language that is used by persons with visual impairments. Each raised dot configuration represents a letter or word combination.

Braille Display:
A Braille display is a tactile device consisting of a row of special 'soft' cells. A soft cell has 6 or 8 pins made of metal or nylon; the pins are controlled electronically to move up and down to display characters as they appear on the display of the source system - usually a computer or Braille note taker...They can also be used for advanced math work and for computer coding. A number of cells are placed next to each other to form a soft or refreshable Braille line. As the little pins of each cell pop up and down, they form a line of Braille text that can be read by touch.

Braille Embossers and Translators:
A Braille embosser transfers computer-generated text into embossed Braille output. Translation programs convert text, scanned in or generated via standard word processing programs, into Braille that can be printed on the embosser.

C

Captioning:
A text transcript of the audio portion of multimedia products, such as video and television, that is synchronized to the visual events taking place on screen.

> Example: For a child with a severe hearing impairment, captioning of television, video, and multimedia makes an enormous difference. When captioned, a CD-Rom that uses audio narration to tell a story, will allow a child to enjoy and understand the material the same way a child without a hearing impairment would.

D

Digitized Speech:
Digitized Speech is speech that has been digitally recorded for later play-back. As it is a recording, the quality is good and easy to understand. Digitized speech may be used in CD-Roms for talking stories, in encyclopedias, and in software packages where teachers and students are able to record sounds, words and sentences themselves. Digitized Speech has a finite, predetermined vocabulary and so does not offer full access to mainstream software.

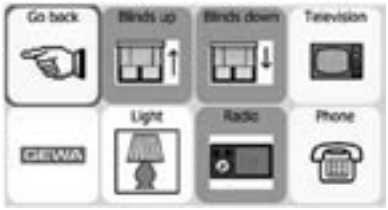
Due Process Hearing
You may request a due process hearing at any time if you are unable to resolve your differences with the school. A due process hearing is more formal than mediation, and the parties generally are represented by attorneys. An impartial hearing officer hears both sides of the dispute and issues a written decision within 45 calendar days of the hearing request. If either the parents or the school disagrees with the decision of the hearing officer, the decision may be appealed through the court system.

E

Electronic Pointing Devices:
Electronic pointing devices allow the user to control the cursor on the screen using ultrasound, an infrared beam, eye movements, nerve signals, or brain waves. When used with an on-screen keyboard, electronic pointing devices also allow the user to enter text and data.

Example: Electronic pointing devices might look a bit like something from the space age, but the technology is life changing for people with little or no mobility. Take the case of Vanya, a teenager with a traumatic brain injury. Vanya's ocular movement was tracked and registered. She is now able to use a device that lets her interact with her computer, and thereby control her environment, solely with eye movement.

Environmental Control Unit (ECU):
Environmental control units (ECUs) are systems that enable individuals to control various electronic devices in their environment through a variety of alternative access methods, such as switch or voice access. ECUs can control lights, televisions, telephones, music players, door openers, security systems, and kitchen appliances. These systems can also be referred to as Electronic Aids to Daily Living (EADL).



Eye Gaze Board:
An Eye Gaze Board is a clear Plexiglas board that is used as a simple communication device. Pictures are mounted at strategic areas on the board and the user is asked to look at the picture they want to choose.

F

FAPE
This abbreviation stands for "free and appropriate education". It is the term used in the IDEA law, which states that school systems must provide children with disabilities with special education services and acommodations (including AT) at no cost to the parents. The law does not say what is considered an "appropriate" education, but other references within the law imply that children should be taught in the most typical classroom setting possible.

I

Individuals with Disabilities Education Act (Amendments of 1997):
The Individuals with Disabilities Education Act (IDEA) was initially passed in 1975 as P.L. 94-142. That Law, known as the Education for All Handicapped children Act, or the EHA, guaranteed that eligible children and youth with disabilities would have a free and appropriate public education (FAPE) available to them, designed to meet their unique educational needs. P.L. 94-142 has been amended many times since passing in 1975, most recently in 2004.

For more information about IDEA, you can visit the following website:
http://www.ed.gov/offices/OSERS/Policy/IDEA/index.html

Individualized Education Program (IEP):
Each public school child who receives special education and related services must have an Individualized Education Program (IEP). Each IEP must be designed for one student and must be a truly individualized document. The IEP includes such information as present levels of functioning, future goals, and services to be provided. The IEP creates an opportunity for teachers, parents, school administrators, related services personnel, and students (when appropriate) to work together to improve educational results for children with disabilities.
Additional Resources: http://www.katsnet.org/docs/ATandIEP2013.pdf

Information Technology:
Information technology includes any product used to acquire, store, manipulate, or transmit information, such as computers, multimedia, telecommunications, copy machines, and the Internet.

Infrared Sender/Receiver:
An Infrared Sender/Receiver is a device commonly found in an environmental control unit (ECU). An infrared signal is sent to the control unit, which in turn sends an infrared signal to the appliance. These are usually small and portable and vary in size and shape. They can be used in different areas of the same room, but the remote must be aimed directly at the control box, with nothing in its path, for the signal to be received.

J

Joysticks:
A joystick may be used as an alternate input device. Joysticks that can be plugged into the computer's mouse port can control the cursor on the screen. Other joysticks plug into game ports and depend on software that is designed to accept joystick control.

Photo Courtesy of Aroga

See also: Alternative Access/Input Device

K

Keyboard Additions:
A variety of accessories have been designed to make keyboards more accessible. Keyguards are hard plastic covers with holes for each key. Someone with an unsteady finger or using a pointing device can avoid striking unwanted keys by using a keyguard. Moisture guards are thin sheets of plastic that protect keyboards from spills and saliva. Alternative labels add visual clarity or tactile information to the keys.

Example: When John, a young man with muscular dystrophy, doesn't use the keyguard, he often clicks letters that he doesn't want. The clearly defined spaces between keys, provided by the keyguards, helps him select the keys he wants.

Photo Courtesyof IntelliTools

Keyboard Emulator:
A keyboard emulator is a device that is connected to or resides in a computer and imitates the computer's keyboard in function and performance.

L

LRE
The abbreviation LRE stands for "least restrictive environment." This means that to the maximum extent appropriate, children with disabilities are educated with children who are not disabled. Removal from the regular educational environment occurs only when a student cannot be successfully educated in that setting even with supplementary aids and services.

M

Mediation
In the context of AT, mediation is a process to resolve disagreements between parents and school personnel. It is provided at no cost to you or the school district. Both parties must agree to mediation. A neutral trained mediator will facilitate the meeting to help both parties resolve their disagreements. Mediation is more structured than conciliation but less formal than a due process hearing.

Mobility and Transportation Aids
Mobility and transportation aids include products that help mobility-impaired persons move within their environment, and give them independence in personal transportation. These products include standing or walking aids, transfer aids, stair lifts, walkers, scooters, wheelchairs and three-wheeled chairs, adapted bikes and tricycles, car seats or beds, stretchers, patient chairs, ramps, recliners, strollers, travel chairs, wheelchair trays, driving controls, seat belts, vehicle conversions, patient and wheelchair lifts, wheelchair loaders/carriers and wheelchair restraint systems.

O

Onscreen Keyboard:
On-screen keyboards are software images of a standard or modified keyboard placed on the computer screen by software. The keys are selected by a mouse, touch screen, trackball, joystick, switch, or electronic pointing device.

Example: Brad, a young boy with limited mobility and severe verbal impairments, uses onscreen keyboards to communicate with those around him. Through these keyboards (both pre-formatted keyboards and those designed by his parents to meet his specific needs) and selecting options on the screen, he is able to relay concepts, needs and thoughts more easily.

Courtesy of Zygo, USA

Optical Character Recognition and Scanners:
Optical character recognition (OCR) software works with a scanner to convert images from a printed page into a standard computer file. With OCR software, the resulting computer file can be edited. Pictures and photographs do not require OCR software to be manipulated.

Example: Pierre is a high school student who was diagnosed with Stargardt disease (inherited juvenile macular degeneration) at age 10. He has been legally blind since age 12. Much of his schoolwork is available electronically, and he uses his screen reader to scan the text. Often, however, documents are only available in hard copy. These documents are scanned into his computer using a basic scanner with OCR software. The "graphic" image from the printed page then becomes electronic text.

P

Pointing and Typing Aids:
A pointing or typing aid is typically a wand or stick used to strike keys on the keyboard. They are most commonly worn on the head, held in the mouth, strapped to the chin, or held in the hand.

Example: For Kwame, a young man with severe spinal cord injury and no mobility from his head down, pointing and typing aids allow him to interface with his computer. His aid, a small patch worn on his forehead, allow him to navigate around his computer. When he moves his head, this device substitutes as a mouse and allows him to perform standard activities, such as playing games or taking tests, and even more advanced activities like drawing.

Photo courtesy of Madentec

Additional Resources:
Alliance for Technology Access at http://www.ataccess.org/resources/atabook/s02/s02-03i.html

Prosthetic and Orthotics:
Prosthetic and orthotics include replacement, substitution or augmentation of missing or malfunctioning body parts with artificial limbs or other orthotic aids. This includes splints, braces, foot orthosis, helmets, restraints, and supports.

S

Screen Enlargement Programs:
Screen enlargement programs magnify a section of the screen, increasing the visibility for users with limited vision. Most screen enlargement programs have variable magnification levels and some offer text-to-speech options.

Screen Reader:
A screen reader is a software program that uses synthesized speech to "speak" graphics and text out loud. This type of program is used by people with limited vision or blindness.

Example: Teri has been blind from birth. A screen reader allows her to access visual information on a computer screen. A piece of software installed in her computer goes "behind the scenes" and reads the text that exists behind the graphic Web pages that sighted people read.

Seating and Positioning Aids:
Seating and positioning aids offer modifications to wheelchairs or other seating systems. They provide greater body stability, upright posture or reduction of pressure on the skin surface. Equipment includes wheelchair cushions, trunk/head supports, modular seating, and seating lifts.

Switches and Switch Software:
Switches offer an alternative method to provide input into a computer when it is not possible to use a more direct access method, such as a standard keyboard or mouse. Switches come in various sizes, shapes, colors, methods of activation, and placement options. An interface device and software program are usually required to connect the switch to the computer and interpret the operation of the switch.

Photo Courtesy of Aroga

Some software programs have been developed specifically for use with a switch and can employ on-screen scanning. With on-screen scanning, the computer highlights the options available to the user depending upon what action he or she wants the computer to take. The highlights are done either by sound, visual cue or both. When a visual or auditory prompt indicates a specific keyboard or mouse function, the user activates the switch and the desired function occurs.

Other programs have built-in options to allow switch use. Many standard software programs can be accessed through a switch with the use of additional software and devices.

T

Talking Word Processors:
Talking word processors (TWP) are writing software programs that provide audio feedback as the student writes. As each letter is typed and each word is written, the TWP will "speak" it back to the user. Many of these inexpensive writing programs also incorporate powerful tools for reading. Students with learning disabilities often find that having written material read aloud helps them to better edit, comprehend and organize their projects. Once a file (i.e. story from a book, assignment, article or typed information) is imported into a talking word processor, the text can be read aloud to the student. These TWP programs offer other adjustments as well, such as enlarging the size of the text, and changing the color of the foreground, background, and highlighting box, to assist students in following along as the text is read.

Touch Screens:
A touch screen is a device placed on or built into the computer monitor that allows direct activation of the computer, or selection of a program, through a touch on the screen.

Photo Courtesy of Mayer-Johnson, LLC

TTD or TTY :

A telecommunication device for the deaf TTY/TDD is a device with a keyboard that sends and receives typed messages over a telephone line.

Photo Courtesy of Galludet University

U

Universal Design:
Universal design is the design of products and environments so they are usable by a wide range of people. Examples of universally designed environments include buildings with ramps, curb cuts, and automatic doors.

Universal Design for Learning:
Universal Design for Learning (UDL) is the design of instructional materials and activities that make learning goals achievable by individuals with wide differences in their abilities to see, hear, speak, move, read, write, understand English, attend, organize engage and remember. Universal Design for Learning is achievable via flexible curricular materials and activities that provide alternatives for students with differing abilities. These alternatives are built into the instructional design and operating systems of educational materials; they are not added on after-the-fact.

V

Voice Recognition:
Different types of voice recognition systems (also called speech recognition) are available. Voice recognition allows the user to speak to the computer, instead of using a keyboard or mouse, to input data or control computer functions. Voice recognition systems can be used to create text documents such as letters or email, to browse the Internet, and to navigate among applications and menus.

W

Web Accessibility
Universal accessibility to the Web means that all people, regardless of their physical or developmental abilities or impairments, have access to Web-based information and services. Making Web pages accessible is accomplished by designing them to allow the effective use of adaptive technologies to access their content.
See also, Screen Reader

Word Prediction Programs:
Word prediction programs allow the user to select a desired word from an on-screen list located in the prediction window. The computer-generated list predicts words from the first or second letter(s) typed by the user. The word may then be selected from the list and inserted into the text by typing a number, clicking the mouse, or scanning with a switch.

Example: Word prediction programs speed up the time it takes Johanna, a young woman with quadriplegia, to communicate her needs to her personal assistant (PA). Instead of typing out full words, a drop down list of common words, beginning with the initial letters entered, appears allowing the entire word to be simply "clicked" instead of typed out in full. Word prediction programs also help Chad, a sixth grader with learning disabilities, when he is writing papers for school. Often he can only recall parts of a word or can spell a word phonetically, but cannot correctly spell the word. Word prediction programs allow Chad to type in a few letters, or type in a word's phonetic spelling, and then present him with correctly spelled alternatives.

X

X-10 Unit:

X-10 is a communications "language" that allows compatible products to talk to each other using the existing electrical wiring in the home. Most X-10 compatible products are very affordable and the fact that they talk over existing wires in your home means that no costly rewiring is necessary. Installation is simple, a transmitter plugs (or wires) in at one location in the home and sends its control signal (on, off, dim, bright) to a receiver which plugs (or wires) into another location in the home.

Section 6:
Additional AT Information Resources

How to Learn More

The world of assistive technology is constantly changing. New tools are invented and old tools are upgraded. It can be difficult to stay current with the latest in AT and determine which tools are best for your child. There are many ways to keep up with developments in technology and learn more about the law, writing an IEP, using AT devices at school, or finding funding. The majority of the information providers listed below are accessible via the Internet. If you do not have Internet access at home, it is likely that your public library and your child's school library can provide access to these websites. We have also provided mailing addresses and telephone numbers where possible. Remember – the goal of everyone working in this field is to help you and your family.

National Sources of Assistive Technology Information

Family Center on Technology and Disability

The Family Center (FCTD) provides a range of AT resources to organizations that work with families of children with disabilities. Funded by the U.S. Department of Education, all of the Center's resources are free and may be accessed directly by families via its website. Resources include two searchable databases: (1) AT-related articles, guides, information sheets, websites, and training materials and (2) information about organizations from which families may receive information and services. The FCTD hosts month-long online discussions led by national experts on topics such as AT funding, inclusion, assessment and evaluation, and other relevant topics. The Center produces a monthly newsletter featuring interviews with AT experts and annual CD-ROMs containing all of the AT content on its website. The Family Center offers a Summer Institute on Assistive Technology, which may be taken for Continuing Education Credit.

Family Center on Technology & Disability
1825 Connecticut Avenue, N.W.
Washington, D.C. 20009
Website: www.fctd.info
Email: fctd@aed.org
Voice: 202-884-8068
Fax: 202-884-8441

Alliance for Technology Access Resource Centers

The Alliance for Technology Access (ATA) is a national network of resource centers that focus on technology for people with disabilities. The services provided by the centers vary from state to state, but many offer assistive technology assessment, consultation, training, demonstration, lending programs, referrals, and general information. For a list of resource centers in your state, contact ATA headquarters and ask them to refer you to centers in your area or refer to the ATA website below for a list of national centers.

Alliance for Technology Access - National Office
1304 Southpoint Blvd., Suite 240
Petaluma, CA 94954
Website: www.ataccess.org
Email: ATAinfo@ATAccess.org

Voice: 707-778-3011
Fax: 707-765-2080
TTY: 707-778-3015

State Technology Act Projects
State Technology Act projects are funded by the federal Assistive Technology Act of 2004. The services of these projects vary from state to state, but many offer state-specific information and referral, training, resources, and information on legislation and funding for assistive technology.

For a complete list of "Tech Act" projects in each state, you can visit the Association of Assistive Technology Act Programs (ATAP) at http://www.ataporg.org/states_listing.html.

In addition, NICHCY compiles disability-related resources in each state, and creates State Resource Sheets. The sheets help you locate organizations and agencies within your state that address disability-related issues. You can contact them by phone at 800-695-0285 V/TTY or online at: http://nichcy.org/state-organization-search-by-state.

Parent Training and Information Centers
Each state is home to at least one Parent Training and Information Center (PTI). Parent Centers serve families of children and young adults from birth to age 22 with all disabilities: physical, cognitive, emotional, and learning. They help families obtain appropriate education and services for their children with disabilities; work to improve education results for all children; train and inform parents and professionals on a variety of topics; resolve problems between families and schools or other agencies; and connect children with disabilities to community resources that address their needs. To find a Parent Center in your state or region, contact:

Technical Assistance Alliance for Parent Centers - National Office
8161 Normandale Blvd.
Bloomington, MN 55437
Website: www.taalliance.org
Email: alliance@taalliance.org
Voice: 952-838-9000 or 1-888-248-0822
TTY: 952-838-0190

U.S. Department of Education
The Department of Education's Office of Special Education and Rehabilitative Services (OSERS) is comprised of the Office of the Assistant Secretary (OAS) and three program components: the Office of Special Education Programs (OSEP), the National Institute on Disability and Rehabilitation Research (NIDRR), and the Rehabilitation Services Administration (RSA). OSER's reports and resources, including toll-free telephone numbers, can be accessed at: www.ed.gov/about/offices/list/osers/osep/index.html.

The Office of Special Education Programs (OSEP) has its own website at: www.ed.gov/about/offices/list/osers/osep/index.html. Families can learn more about the new IDEA legislation and link to many of the resources discussed in this guide via OSEP's website.

Additional Websites with Assistive Technology Information

The websites listed below offer information about AT products. Some offer basic AT training material as well.

ABLEDATA
The ABLEDATA website contains a searchable database of information on more than 30,000 assistive technology products. The database contains detailed descriptions of each product, including price and vendor contact information. The database also contains information on non-commercial prototypes, customized and one-of-a-kind products, and do-it-yourself designs.

ABLEDATA
8630 Fenton Street, Suite 930
Silver Spring, MD 20910
Website: http://www.abledata.com
Voice: 800-227-0216

Assistivetech.net
The Assistivetech.net website offers a wide variety of assistive technology and disability-related information, including a searchable AT database that is designed to help you target solutions, determine costs, and link to vendors that sell products. Target audiences include people with disabilities, family members, service providers, educators, and employers.

Georgia Tech Center for Assistive Technology and Environmental Access
490 Tenth Street, NW
Atlanta, GA 30332-0156
Website: www.assistivetech.net
Email: info@assistivetech.net
Voice/TTY: 800-726-9119 or 404-894-1414
Fax: 404-894-9320

AT Online Training Project
Developed by the University of Buffalo's Center for Technology, this website provides AT-related information under the following headings: Assistive Technology Basics; Tutorials; Assistive Technology Decision Making; and Resources. The site is easily navigable and features large print. Website content is aimed at parents, caregivers and teachers who are beginning their introduction to technology use by children with special needs.

Assistive Technology Training Online Project
University at Buffalo -
Center for Assistive Technology
515 Kimball Tower
Buffalo , NY 14214
Website: http://www.atto.buffalo.edu

Email: atto-webmaster@buffalo.edu
Voice: 716-829-3141
Fax: 716-829-3217

Infinitec
The Infinitec website is a joint effort of the United Cerebral Palsy Association (UCP) of Chicago and UCP Associates in Washington, D.C. The AT-related information on the site is useful not only to those with Cerebral Palsy, but to a wide range of families and practitioners. The site is organized in four sections: independent living, learning, playing, and working.

UCP Chicago - Infinitec
160 N.Wacker Drive
Chicago , Illinois 60606
Website: http://www.infinitec.org
Voice: 312-368-0380

While the sites above contain a wide range of disability-related information, you may want to research your child's specific disabilit(y/ies) in greater depth. Using Internet "search engines" can be useful for such research. Using a search engine is easy. Simply type one of the following addresses in the "address" line near the top of your Internet screen and click enter.

www.google.com www.yahoo.com www.dogpile.com

When the search engine site appears on your screen, type key words that best describe the topic you are interested in. If you are unsure about the spelling of a particular disability or AT term, the following website includes extensive glossaries of disability-specific terms: http://www.fapeonline.org/terms.htm

The National Institutes of Health website - http://health.nih.gov - includes an A-Z listing of health topics, including many disability terms. The NIH site provides a great deal of information about each disability as well.

Assistive Technology Publications

Computer and Web Resources for People with Disabilities, 4th Edition
With a foreword written by Stephen Hawking, this updated version of ATA's popular resource offers reader-friendly information on a wide range of computer hardware and software issues. It provides worksheets and checklists to help families and others construct an assistive technology plan. It also offers a "technology toolbox" designed to help match functional abilities and appropriate technologies. The book is available in paperback for $24.95 and spiral-bound for $31.95. Ordering information is found on ATA's website, identified below.

Alliance for Technology Access
1304 Southpoint Blvd., Suite 240

Petaluma, CA 94954
Website: http://www.ataccess.org
Voice: 707-778-3011
TTY: 707-778-3015
Fax: 707-765-2080

Family Guide to Assistive Technology
Parents, Let's Unite for Kids (PLUK) is a Montana-based organization formed by parents of children with disabilities and chronic illnesses. Although this resource dates to 1997, much of its information remains useful. It can be read online at www.pluk.org/AT1.html.

Journal of Special Education Technology
Published by the Council for Exceptional Children, JSET is a professional journal that presents up-to-date information about issues, research, policy, and practice related to the use of technology in the field of special education. The online version is available free of charge and is easy to navigate. The print version is available for $40 per year.

The Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA, 22201-5704
Website: http://www.cec.sped.org/
Voice: 703-620-3663 or 1-888-CEC-SPED
TTY: 703-264-9446
Fax: 703-264-9494

Computer Monitor Newsletter
A publication of the PACER Center, this free quarterly newsletter is available in print or online. The newsletter features articles on assistive technology products, strategies for implementation of assistive technology, AT training opportunities, and success stories about individual AT users. Target audiences are parents, educators, and people with disabilities.

PACER Simon Technology Center
8161 Normandale Blvd Minneapolis, MN 55437
Website: http://www.pacer.org/stc/
Voice: 952-838-9000

AT Journal
This free monthly e-newsletter is published by the AT Network and California Assistive Technology Systems. The journal features articles on new developments in technology, success stories, legislative updates, and more. You can access the journal via the website or you can register to receive it via email.

Website: http://atnetworkblog.blogspot.com/

Voice: 800-390-2699
TDD: 800-900-0706

Exceptional Parent Magazine
This monthly print and online magazine features articles and resources on assistive technology from a parent perspective. The online version is free but requires that users complete a registration form. The print version is available for $35 annually.

P.O. Box 2079
Marion OH, 43306
800-372-7368
www.exceptionalparent.com

AT Information on Video, CD, and DVD

I Can Soar: How technology helps students take off
National Center for Technology Innovation, 2003
Available as a free Web download or on captioned CD-ROM, "I Can Soar" is a 26-minute, documentary-style video with supporting materials that describes how four students with disabilities use assistive technology (AT). The video shows assistive tools being effectively integrated into the students' lives at home, at school, and in the community. Family members, teachers, therapists, administrators, and others describe methods for choosing AT solutions, putting them into use, and ensuring they work for each student.

To access online: http://www.usu.edu/mprrc/icansoar/icansoar1.cfm
To order the CD-ROM, contact:
Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA 22201
Voice: 703-620-3660 or 888-232-7733 / TTY: 866-915-5000 (toll-free) Fax: 703-264-9494
E-mail: services@cec.sped.org

Freedom Machines
Freedom Machines, a public television program and national outreach campaign, looks at society's beliefs about disability through the lens of assistive technology. Viewers meet a cross-section of America's population—a few of the 54 million Americans with disabilities—whose lives are being transformed with the help of new technologies.

To order a copy of the program and to learn about the national outreach campaign, go to http://www.freedommachines.com.

Conferences on Assistive Technology Products and Services

For those interested, there are a number of national conferences that focus specifically on assistive technology. The largest are:

Assistive Technology Industry Association
526 Davis Street, Suite 217
Evanston IL 60201
Website: www.ATIA.org
Voice: 847-869-2842

Closing the Gap
P.O. Box 68
Henderson MN 56044
Website: www.closingthegap.com
Voice: 612-248-3294
Fax: 612-248-3810

Technology and Persons with Disabilities Annual Conference
California State University, Northridge (CSUN)
Center on Disabilities
18111 Nordoff Street
Northridge CA 91330-8340
Website: www.csun.edu/cod
Email: ltm@csun.edu
Voice/TTY: 818-885-2578
Fax: 818-677-4929

There are, in addition, many online discussions and forums that can provide access to national experts and others in the field, from the comfort of your home computer. The Family Center on Technology and Disability offers six month-long discussions per year, featuring experts on a range of AT subjects. Funded by the U.S. Department of Education's Office of Special Education Projects, they are free of charge to the public. To view archived discussions and participate in a current or upcoming discussion, visit http://www.fctd.info.

We hope this guide has been helpful to you.

It can be read online, with active links to the resources, at www.fctd.info

Additional print copies are available for $10

To order one or more print copies, you can call, e-mail, or order online:

The Family Center on Technology and Disability
1825 Connecticut Avenue, N.W.
Washington, D.C. 20009
(202) 884-8068
fctd@aed.org
www.fctd.info

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Assistive Technology (AT) Resources

Publications

- *Low- and High-Tech Assistive Technology* – Overview of low- and high-tech assistive technology equipment. English and Spanish.
- *Assistive Technology for Children* – Overview of assistive technology and how to request equipment and services. English and Spanish.
- *Digital Accessibility* – Information about the benefits of digital accessibility for businesses and people with disabilities.
- *Assistive Technology* – Information about assistive technology, how DRT can help, and assistive technology resources in Tennessee. In English and Spanish.
- Communicating with Video Remote Interpreting – An overview of video interpreting and Federal operating guidlines.
- *The Impact of Standing* – An informational piece about the benefits of standing for wheelchair users.
- *AT Inventors Guide* – RESNA Catalyst Project's guide for people inventing and developing assistive technology devices.
- *Assistive Technology in the Classroom* – Article outlining the use of assistive technology at school.
- *DRT Client Story: Doriscell* – Doriscell, who is hard of hearing, worked hard to earn her degree and now she brings the same dedication to her work. Read how she worked with DRT and VR to receive the support she needed to do her job.
- *Reflections on Lane v. Tennessee* – A reflection on the Lan v Tennessee case and it's impact on accessibility in the courts.

Services

- *Tennessee Technology Access Program* – A Statewide program providing funding Assistance, Device Demonstration, Device Loan and Device Reutilization for people with disabilities.
- *Spark (formerly East Tennessee Technology Access Center)* – The Knoxville area Spark helps people with disabilities gain knowledge about and access to assistive technology devices.
- *Signal Center* – The Chattanooga area Assistive Technology Center helps people with disabilities gain knowledge about and access to assistive technology devices.
- *Mid-South Access Center for Technology* – The Memphis area Assistive Technology Center helps people with disabilities gain knowledge about and access to assistive technology devices.
- *Star Center* – The Jackson area Assistive Technology Center helps people with disabilities gain knowledge about and access to assistive technology devices.
- *Tennessee Disability Pathfinder*– A Statewide clearinghouse of disability-related resources and multilingual helpline.

Information

- *Assistive Technology in ADA* – Information and Technical Assistance on ADA Standards from the US Department of Justice Civil Rights Division.
- *RESNA Position Papers* – Position papers on the use of various AT.