Considering Assistive Technology in the IEP Process



Resource Guide

(Revised February, 2007)

Considering Assistive Technology in the IEP Process



Considering Assistive Technology in the IEP Process is a professional development module, which was collaboratively developed by:

- Texas Assistive Technology Network, with leadership provided by Region 4 Education Service Center
 - Texas Education Agency (TEA)
 - Texas Technology Access Project
- University of Texas at Austin, Department of Special Education,
 College of Education









The University of Texas

Department of Special Education

The Considering Assistive Technology in the IEP training module and Resource Guide supplement may be downloaded from the Texas Assistive Technology Network (TATN) website at http://www.texasat.net and the Texas Technology Access Project website at http://techaccess.edb.utexas.edu.

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Legal References Related to Assistive Technology



Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004) Public Law 108-446 and Title 34 of the Code of Federal Regulations

34 C.F.R. § 300.5 Assistive technology device

Assistive technology device means any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of a child with a disability. The term does not include a medical device that is surgically implanted, or the replacement of that device. (Authority 20 U.S.C. 1401(1))

34 C.F.R. § 300.6 Assistive technology service

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

- (a) The evaluation of the needs of a child with a disability, including a functional evaluation of the child in the child's customary environment;
- (b) Purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by children with disabilities;
- (c) Selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing assistive technology devices;
- (d) Coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;
- (e) Training or technical assistance for a child with a disability or, if appropriate, that child's family; and
- (f) Training or technical assistance for professionals (including individuals providing education or rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of that child.

(Authority: 20 U.S.C. 1401(2))

34 C.F.R. § 300.14 Equipment

Equipment means—

(b) All other items necessary for the functioning of a particular facility as a facility for the provision of educational services, including items such as instructional equipment and necessary furniture; printed, published and audio-visual instructional materials; telecommunications, sensory, and other technological aids and devices; and books, periodicals, documents, and other related materials.

(Authority: 20 U.S.C. 1401(7))

34 C.F.R. § 300.34 Related services

- (a) *General. Related services* means transportation and such developmental, corrective, and other supportive services as are required to assist a child with a disability to benefit from special education, and includes speech-language pathology and audiology services, interpreting services, psychological services, physical and occupational therapy, recreation, including therapeutic recreation, early identification and assessment of disabilities in children, counseling services, including rehabilitation counseling, orientation and mobility services, and medical services for diagnostic or evaluation purposes. Related services also include school health services and school nurse services, social work services in schools, and parent counseling and training.
- (b) Exception; services that apply to children with surgically implanted devices, including cochlear implants.
 - (1) Related services do not include a medical device that is surgically implanted, the optimization of that device's functioning (e.g., mapping), maintenance of that device, or the replacement of that device.
 - (2) Nothing in paragraph (b) (1) of this section—
 - (i) Limits the right of a child with a surgically implanted device (e.g., cochlear implant) to receive related services (as listed in paragraph (a) of this section) that are determined by the IEP Team to be necessary for the child to receive FAPE.
 - (ii) Limits the responsibility of a public agency to appropriately monitor and maintain medical devices that are needed to maintain the health and safety of the child, including breathing, nutrition, or operation of other bodily functions, while the child is transported to and from school or is at school; or

(iii) Prevents the routine checking of an external component of a surgically implanted device to make sure it is functioning properly, as required in § 300.113(b).

(Authority: 20 U.S.C. 1401(26))

34 C.F.R. § 300.39 Special education

- (a) *General*. (1) *Special education* means specially designed instruction, at no cost to the parents, to meet the unique needs of a child with a disability, including—
- (b) Individual special education terms defined. The terms in this definition are defined as follows:
 - (3) Specially designed instruction means adapting, as appropriate to the needs of an eligible child under this part, the content, methodology, or delivery of instruction—
 - (i) To address the unique needs of the child that result from the child's disability; and
 - (ii) To ensure access of the child to the general curriculum, so that the child can meet the educational standards within the jurisdiction of the public agency that apply to all children.

(Authority: 20 U.S.C. 1401(29))

34 C.F.R. § 300.42 Supplementary aids and services

Supplementary aids and services means aids, services, and other supports that are provided in regular education classes, other education-related settings, and in extracurricular and nonacademic settings, to enable children with disabilities to be educated with nondisabled children to the maximum extent appropriate in accordance with §§ 300.114 through 300.116. (Authority: 20 U.S.C. 1401(33))

34 C.F.R. § 300.44 Universal design

Universal design has the meaning given the term in section 3 of the Assistive Technology Act of 1998, as amended, 29 U.S.C. 3002.

(Authority: 20 U.S.C. 1401(35))

34 C.F.R § 300.105 Assistive technology

- (a) Each public agency must ensure that assistive technology devices or assistive technology services, or both, as those terms are defined in §§ 300.5 and 300.6, respectively, are made available to a child with a disability if required as a part of the child's—
 - (1) Special education under § 300.36;
 - (2) Related services under § 300.34; or
 - (3) Supplementary aids and services under §§ 300.38 and 300.114(a)(2)(ii).
- (b) On a case-by-case basis, the use of school-purchased assistive technology devices in a child's home or in other settings is required if the child's IEP Team determines that the child needs access to those devices in order to receive FAPE. (Authority: 20 U.S.C. 1412(a)(1), 1412 (a)(12)(B)(i))

34 C.F.R. § 300.113 Routine checking of hearing aids and external components of surgically implanted medical devices.

- (a) *Hearing aids*. Each public agency must ensure that hearing aids worn in school by children with hearing impairments, including deafness, are functioning properly.
- (b) External components of surgically implanted medical devices.
 - (1) Subject to paragraph (b)(2) of this section, each public agency must ensure that the external components of surgically implanted medical devices are functioning properly.
 - (2) For a child with a surgically implanted medical device who is receiving special education and related services under this part, a public agency is not responsible for the post-surgical maintenance, programming, or replacement of the medical device that has been surgically implanted (or of an external component of the surgically implanted medical device).

(Authority: 20 U.S.C. 1401(1), 1401(26)(B))

34 C.F.R. § 300.172 Access to instructional materials

- (a) General. The State must—
 - (1) Adopt the National Instructional Materials Accessibility Standard (NIMAS), published as appendix C to part 300, for the purposes of providing instructional materials to blind persons or other persons with print disabilities, in a timely manner after publication of the NIMAS in the *Federal Register* on July 19, 2006 (71 FR 41084); and
 - (2) Establish a State definition of "timely manner" for purposes of paragraphs (b)(2) and (b)(3) of this section if the State is not coordinating with the National Instructional Materials Access Center (NIMAC) or (b)(3) and (c)(2) of this section if the State is coordinating with the NIMAC.

- (b) Rights and responsibilities of SEA.
 - (1) Nothing in this section shall be construed to require any SEA to coordinate with the NIMAC.
 - (2) If an SEA chooses not to coordinate with the NIMAC, the SEA must provide an assurance to the Secretary that it will provide instructional materials to blind persons or other persons with print disabilities in a timely manner.
 - (3) Nothing in this section relieves an SEA of its responsibility to ensure that children with disabilities who need instructional materials in accessible formats, but are not included under the definition of blind or other persons with print disabilities in § 300.172(e)(1)(i) or who need materials that cannot be produced from NIMAS files, receive those instructional materials in a timely manner.
 - (4) In order to meet its responsibility under paragraphs (b)(2), (b)(3), and (c) of this section to ensure that children with disabilities who need instructional materials in accessible formats are provided those materials in a timely manner, the SEA must ensure that all public agencies take all reasonable steps to provide instructional materials in accessible formats to children with disabilities who need those instructional materials at the same time as other children receive instructional materials.
- (c) Preparation and delivery of files. If an SEA chooses to coordinate with the NIMAC, as of December 3, 2006, the SEA must—
 - (1) As part of any print instructional materials adoption process, procurement contract, or other practice or instrument used for purchase of print instructional materials, must enter into a written contract with the publisher of the print instructional materials to—
 - (i) Require the publisher to prepare and, on or before delivery of the print instructional materials, provide to NIMAC electronic files containing the contents of the print instructional materials using the NIMAS, or
 - (ii) Purchase instructional materials from the publisher that are produced in, or may be rendered in, specialized formats.
 - (2) Provide instructional materials to blind persons or other persons with print disabilities in a timely manner.
- (d) *Assistive technology*. In carrying out this section, the SEA, to the maximum extent possible, must work collaboratively with the State agency responsible for assistive technology programs.
- (e) Definitions. (1) In this section and § 300.210—
 - (i) *Blind persons or other persons with print disabilities* means children served under this part who may qualify to receive books and other publications produced in specialized formats in accordance with the Act entitled "An Act to provide books for adult blind," approved March 3, 1931, 2 U.S.C 135a;
 - (ii) National Instructional Materials Access Center or NIMAC means the center established pursuant to section 674(e) of the Act;
 - (iii) National Instructional Materials Accessibility Standard or NIMAS has the meaning given the term in section 674(e)(3)(B) of the Act:
 - (iv) Specialized formats has the meaning given the term in section 674(e)(3)(D) of the Act.
 - (2) The definitions in paragraph (e)(1) of this section apply to each State and LEA, whether or not the State or LEA chooses to coordinate with the NIMAC.

(Authority: 20 U.S.C. 1412(a)(23), 1474(e))

34 C.F.R. § 300.210 Purchase of instructional materials.

- (a) *General*. Not later than December 3, 2006, an LEA that chooses to coordinate with the National Instructional Materials Access Center (NIMAC), when purchasing print instructional materials, must acquire those instructional materials in the same manner, and subject to the same conditions as an SEA under § 300.172.
- (b) Rights of LEA. (1) Nothing in this section shall be construed to require an LEA to coordinate with the NIMAC.
 - (2) If an LEA chooses not to coordinate with the NIMAC, the LEA must provide an assurance to the SEA that the LEA will provide instructional materials to blind persons or other persons with print disabilities in a timely manner.
 - (3) Nothing in this section relieves an LEA of its responsibility to ensure that children with disabilities who need instructional materials in accessible formats but are not included under the definition of blind or other persons with print disabilities in § 300.172(e)(1)(i) or who need materials that cannot be produced from NIMAS files, receive those instructional materials in a timely manner.

(Authority: 20 U.S.C. 1413(a)(6))

34 C.F.R. § 300.324 Development, review, and revision of IEP

- (a) Development of IEP—
 - (2) Consideration of special factors. The IEP team must—
 - (v) consider whether the child requires assistive technology devices and services.
- (b) Review and revision of IEPs-
 - (2) Consideration of special factors. In conducting a review of the child's IEP, the IEP Team must consider the special factors described in paragraph (a)(2) of this section.

(Authority: 20 U.S.C. 1412 (a)(1), 1412 (a)(12) (A)(i), 1414 (d)(3) and (4)(B) and (7); and 1414(e))

34 C.F.R. § 300.704 State-level activities

- (b) Other State-level activities
 - (4) Funds reserved under paragraph (b)(1) of this section also may be used to carry out the following activities:
 - (iv) To improve the use of technology in the classroom by children with disabilities to enhance learning;
 - (v) To support the use of technology, including technology with universal design principles and assistive technology devices, to maximize accessibility to the general education curriculum for children with disabilities:

(Authority: 20 U.S.C. 1411(e))

Appendix C to Part 300—National Instructional Materials Accessibility Standard (NIMAS)

Under sections 612(a)(23)(A) and 674(e)(4) of the Individuals with Disabilities Education Act, as amended by the Individuals with Disabilities Education Improvement Act of 2004, the Secretary of Education establishes the NIMAS. Under section 674(e)(4) of the Act, the NIMAS applies to print instructional materials published after July 19, 2006. The purpose of the NIMAS is to help increase the availability and timely delivery of print instructional materials in accessible formats to blind or other persons with print disabilities in elementary and secondary schools.

(See Appendix C to Part 300 for Technical Specifications—The Baseline Element Set)

IDEA Definitions Related to the NIMAC

SEC. 674. Technology development, demonstration, and utilization; media services; and instructional materials.

- (e) National Instructional Materials Access Center.—
 - (1) *In General.*—The Secretary shall establish and support, through the American Printing House for the Blind, a center to be known as the 'National Instructional Materials Access Center' not later than 1 year after the date of enactment of the Individuals with Disabilities Education Improvement Act of 2004.
 - (2) Duties.—The duties of the National Instructional Materials Access Center are the following:
 - (A) To receive and maintain a catalog of print instructional materials prepared in the National Instructional Materials Accessibility Standard, as established by the Secretary, made available to such center by the textbook publishing industry, State educational agencies, and local educational agencies.
 - (B) To provide access to print instructional materials, including textbooks, in accessible media, free of charge, to blind or other persons with print disabilities in elementary schools and secondary schools, in accordance with such terms and procedures as the National Instructional Materials Access Center may prescribe.
 - (C) To develop, adopt and publish procedures to protect against copyright infringement, with respect to the print instructional materials provided under sections 612(a)(23) and 613(a)(6).
 - (3) Definitions.—In this subsection:
 - (A) Blind or other persons with print disabilities.—
 - The term 'blind or other persons with print disabilities' means children served under this Act and who may qualify in accordance with the Act entitled 'An Act to provide books for the adult blind', approved March 3, 1931 (2 U.S.C. 135a; 46 Stat. 1487) to receive books and other publications produced in specialized formats.
 - (B) *National Instructional Materials Accessibility Standard*.—The term 'National Instructional Materials Accessibility Standard' means the standard established by the Secretary to be used in the preparation of electronic files suitable and used solely for efficient conversion into specialized formats.
 - (C) *Print Instructional Materials.*—The term 'print instructional materials' means printed textbooks and related printed core materials that are written and published primarily for use in elementary school and secondary school instruction and are required by a State educational agency or local educational agency for use by students in the classroom.
 - (D) Specialized Formats.—The term 'specialized formats' has the meaning given the term in section 121(d)(3) of title 17, United States Code.
 - (4) *Applicability*.—This subsection shall apply to print instructional materials published after the date on which the final rule establishing the National Instructional Materials Accessibility Standard was published in the Federal Register. Establishment Deadline.

20 USC 1474

Definitions from Other Statutes Referred to in IDEA 2004

An Act to Provide Books for the Adult Blind (March 3, 1931, 2 U.S.C. 135a) and Title 36 of the Code of Federal Regulations

36 C.F.R. § 701.10 Loans of library materials for blind and other physically handicapped persons.

- (a) *Program.* In connection with the Library's program of service under the act of March 3, 1931 (46 Stat. 1487), as amended, its National Library Service for the Blind and Physically Handicapped provides books in raised characters (Braille), on sound reproduction recordings, or in any other form, under regulations established by the Librarian of Congress. The National Library Service also provides and maintains reproducers for such sound reproduction recordings for the use of blind and other physically handicapped residents of the United States, including the several States, Territories, Insular Possessions, and the District of Columbia, and American citizens temporarily domiciled abroad.

 (b) *Eligibility Criteria*.
 - (1) The following persons are eligible for such service:
 - (i) Blind persons whose visual acuity, as determined by competent authority, is 20/200 or less in the better eye with correcting glasses, or whose widest diameter if visual field subtends an angular distance no greater than 20 degrees.
 - (ii) Persons whose visual disability, with correction and regardless of optical measurement, is certified by competent authority as preventing the reading of standard printed material.
 - (iii) Persons certified by competent authority as unable to read or unable to use standard printed material as a result of physical limitations.
 - (iv) Persons certified by competent authority as having a reading disability resulting from organic dysfunction and of sufficient severity to prevent their reading printed material in a normal manner.
 - (2) In connection with eligibility for loan services "competent authority" is defined as follows:
 - (i) In cases of blindness, visual disability, or physical limitations "competent authority" is defined to include doctors of medicine, doctors of osteopathy, ophthalmologists, optometrists, registered nurses, therapists, professional staff of hospitals, institutions, and public or welfare agencies (e.g., social workers, case workers, counselors, rehabilitation teachers, and superintendents). In the absence of any of these, certification may be made by professional librarians or by any persons whose competence under specific circumstances is acceptable to the Library of Congress.
 - (ii) In the case of reading disability from organic dysfunction, competent authority is defined as doctors of medicine who may consult with colleagues in associated disciplines.

[39 Federal Register 20203, June 7, 1974, as amended at 46 Federal Register 48661, Oct. 2, 1981]

Legislative Branch Appropriations Act, Public Law 104-197 1996 Chafee Amendment to the Copyright Law

ANACT

Making appropriations for the Legislative Branch for the fiscal year ending September 30, 1997, and for other purposes. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the Legislative Branch for the fiscal year ending September 30, 1997, and for other purposes, namely:

SEC. 316. Limitation on Exclusive Copyrights for Literary Works in Specialized Format for the Blind and Disabled.-(a) In General—Chapter 1 of title 17, United States Code, is amended by adding after section 120 the following new section: SEC.121. Limitations on exclusive rights: reproduction for blind or other people with disabilities

- (a) Notwithstanding the provisions of sections 106 and 710, it is not an infringement of copyright for an authorized entity to reproduce or to distribute copies or phonorecords of a previously published, nondramatic literary work if such copies or phonorecords are reproduced or distributed in specialized formats exclusively for use by blind or other persons with disabilities.
- (b)(1) Copies or phonorecords to which this section applies shall--
 - (A) not be reproduced or distributed in a format other than a specialized format exclusively for use by blind or other persons with disabilities;
 - (B) bear a notice that any further reproduction or distribution in a format other than a specialized format is an infringement; and
 - (C) include a copyright notice identifying the copyright owner and the date of the original publication.

- (2) The provisions of this subsection shall not apply to standardized, secure, or norm-referenced tests and related testing material, or to computer programs, except the portions thereof that are in conventional human language (including descriptions of pictorial works) and displayed to users in the ordinary course of using the computer programs.
- (c) For purposes of this section, the term—
 - (1) *authorized entity* means a nonprofit organization or a governmental agency that has a primary mission to provide specialized services relating to training, education, or adaptive reading or information access needs of blind or other persons with disabilities;
 - (2) *blind or other persons with disabilities means* individuals who are eligible or who may qualify in accordance with the Act entitled 'An Act to provide books for the adult blind', approved March 3, 1931 (2 U.S.C. 135a; 46 Stat. 1487) to receive books and other publications produced in specialized formats; and
 - (3) specialized formats means Braille, audio, or digital text which is exclusively for use by blind or other persons with disabilities.
- (b) *Technical And Conforming Amendment*—-The table of sections for chapter 1 of title 17, United States Code, is amended by adding after the item relating to section 120 the following:
- 121. Limitations on exclusive rights: reproduction for blind or other people with disabilities.

Assistive Technology Act of 1998, Public Law 105-394

Section 3 Definitions and Rule

- (a) DEFINITIONS-- In this act...
 - (17) UNIVERSAL DESIGN- The term `universal design' means a concept or philosophy for designing and delivering products and services that are usable by people with the widest possible range of functional capabilities, which include products and services that are directly usable (without requiring assistive technologies) and products and services that are made usable with assistive technologies.

Texas Statute Related to Special Instructional Materials

Texas Administrative Code (TAC) Chapter 66 State Adoption and Distribution of Instructional Materials Subchapter D. Special Instructional Materials

§66.121. Special Instructional Materials.

- (a) All laws and rules applying to instructional materials provided to sighted pupils that are not in conflict with the Texas Education Code, §31.028, or this section shall apply to the distribution and control of Braille and large type instructional materials.
- (b) Publishers shall grant permission to the state to have adopted instructional materials transcribed into Braille, large type, and audiotape without penalty or royalty.
- (c) On or before the deadline specified in the schedule for the adoption process, each publisher of newly adopted instructional materials shall provide computerized files as specified in the proclamation to be used for producing Braille or other versions of materials to be used by students with disabilities. All information contained in adopted instructional materials shall be included on the computerized files. Computerized files may be copied and distributed to a school district, upon request, for instructional use with a student with disabilities who requires the use of computerized instructional materials, pursuant to an individualized plan developed for the student under the Rehabilitation Act, §504; the Americans with Disabilities Act; or the Individuals with Disabilities Education Act. (Emphasis added)
- (d) The state shall make suitable student instructional materials available in large type. The commissioner of education shall develop specifications for large type instructional materials and notify publishers of student instructional materials suitable for production in large type. The publisher may elect to supply the large type materials, or the commissioner of education may enter into contracts for producing large type materials.

Source: The provisions of this § 66.121 adopted to be effective September 1, 1996, 21 TexReg 7236; amended to be effective October 12, 2006, 31 TexReg 8360.

Assistive Technology Consideration Resource Guide

The following information is provided to assist educational teams in considering assistive technology in the development, review, and/or revision of a student's Individual Educational Plan. This document provides a framework for identifying relevant tasks within instructional areas as well as appropriate accommodations, modifications, and technology solutions. Additional tasks and solutions will need to be added to address individual student needs.

| Instructional or Access Area | Standard Tools | Modifications and Accommodations of Task and Expectations | Assistive Technology Solutions |
|--|---|--|---|
| Sample Tasks: Write name Copy letters/words/numbers for skills practice Write words from memory Copy print from book or worksheet Copy notes from board or overhead Complete written worksheets with single word responses (fill-in-the blank) Complete written worksheets with phrase or sentence response Complete written test with multiple choice response (circle/mark answer) Complete written test and forms with fill-in-the-blank response Complete written test with matching response Complete written test with phrase/sentence (short answer) Complete written test with essay response (multi-paragraph) Record notes from teacher dictation/lecture with teacher recording notes on board/overhead Record notes from teacher dictation/lecture without teacher notes | Crayon/Marker Pencil Pen Letter and number strip Clipboard Typewriter Computer with word processing software with grammar and spell checker Instructional software to remediate and enhance specific writing skills | Increased time for completing assignments Decreased length of assignment/number of responses Oral dictation as an alternative to writing Peer notetaker Format of assignment changed to meet need of student - multiple choice, matching word banks, fill-in-the-blank, short answer Word banks, sentence starters, and cloze format writing activities for supports Provide typed outline or typed copy of lecture notes to student prior to delivery for student to use to follow lecture Student highlights key points on printed copy of notes rather than copying/recording lecture notes Webbing-concept mapping strategy used | Pencil grip or other adapted writing aids Adapted paper (bold line, raised line, different spacing, secured to desk, paper stabilizers) Slant board Personal dry erase board Non-slip writing surface (e.g. dyceum) Tape recorder for dictated responses and notetaking Portable word processor (e.g. PC-5, AlphaSmart, etc.) Note-taking device (e.g. Braille, adapted tape recorder, smartboard) Computer with word processing software with spell and grammar checks (e.g. Microsoft Word) Computer with word processing software and outlining/webbing software (e.g. Inspiration or Kidspiration, DraftBuilder) Computer with graphic-based word processor (e.g. Writing with Symbols) Computer with talking word processing software (e.g. Write OutLoud, IntelliTalk) Computer with word prediction software (e.g. Co:Writer) Computer with graphic based word processor (e.g. Writing with Symbols) Scanner and computer with form filling software to create electronic worksheets |

| Instructional or Access Area | Standard Tools | Modifications and Accommodations of Task and Expectations | Assistive Technology Solutions |
|---|---|--|--|
| Writing Sample Tasks (continued): Generate creative/spontaneous writing samples Copy numbers Enter number in correct location within calculation problems Copy math calculation problems with correct alignment Record dictated math calculation problems with correct alignment Copy diagrams and graphs create and plot linear and quadratic equations on graph | See previous page | See previous page | *Adaptive input hardware and/or software (e.g. keyguard, keyboard utilities, enlarged keyboard, touchscreen, on-screen keyboard, trackball, switch access, voice dictation software, Braille input) and adaptive output solutions (screen enlargement, text or screen reading software) to be used as needed for all computer based writing solutions |
| Spelling: Sample Tasks: Identify correctly spelled word from printed list Write spelling words from dictation Spell words orally Take a written spelling test Use spelling words appropriately in a sentence Locate correctly spelled words in a dictionary Complete writing tasks with correct spelling Identify/correct incorrectly spelled words in writing sample | Flashcards Alphabet strip Print dictionary Computer with word processing software with built-in spell checker Instructional software to remediate and enhance basic phonics and spelling skills | Peer/adult assistance for difficult to spell words Personal or custom dictionary Problem word list Reduce number of spelling words Increased time for completing assignments | Personal dry erase board for practice Tape recorder with difficult to spell words recorded Hand-held spellchecker without auditory output (e.g. Merriam-Webster Dictionary and Thesaurus) Hand-held spellchecker with auditory output (e.g. Speaking Merriam-Webster Dictionary and Thesaurus) Portable word processor with built-in spellchecker (e.g. AlphaSmart) Computer with word processing program with spell check feature (e.g. Microsoft Word) Computer with talking word processing software containing speaking spell check (e.g. Write OutLoud) Computer with word prediction software, (e.g. Co:Writer) |

| Instructional or Access Area | Standard Tools | Modifications and Accommodations of Task and Expectations | Assistive Technology Solutions |
|---|---|--|--|
| Reading: Sample Tasks: Identify letters in isolation and in sequence Recognize/read name Read basic/primer sight words Read functional words (community, emergency, grocery, etc.) Read target/selected words within a sentence Comprehend age/grade appropriate reading materials Read print materials from textbooks and supplemental materials with comprehension Read material from worksheet with comprehension Read material from computer display with comprehension Read longer reading samples with comprehension Read longer reading samples with comprehension and without fatigue Answer literal questions regarding materials read Answer inferential questions regarding materials read Answer inferential questions regarding materials read | Textbooks Worksheets Printed information on board/overhead Printed test materials Instructional software to remediate basic reading and/or reading comprehension skills | Peer/adult reading assistance High interest, low reading level materials Increased time for completing reading materials Decreased length of assignment Simplify complexity of text Color coding to emphasize key points (highlighting) Custom vocabulary list Increase print size of materials through photocopying | Page fluffers Slant board and book holders for positioning books Color Overlays Tracking strategies (e.g. reading window, bar magnifier) Speaking spellchecker or dictionary as a word recognition aid(e.g. Speaking Merriam-Webster Dictionary and Thesaurus) Reading Pen (e.g. Quicktionary Reading pen) Audio-taped books (e.g.books-on-tape from Recordings for the Blind and Dyslexic) Electronic books (e.g. disk or CD-ROM) Computer-based talking word processing program (e.g. Write OutLoud) Computer with graphic word processor (e.g. Writing with Symbols) Computer with text enlargement software (e.g. ZoomText) Computer with text reading software (e.g. ReadPlease, Talk-to-Me, JAWS, Kurzweil 1000) Computer-based advanced reading aids (e.g. Kurzweil 3000, WYNN) Solutions for converting text into alternative format (e.g. scanner with OCR software, Braille translation software, Braille printer/embosser, refreshable Braille displays, and tactile graphic production systems, etc.) |

| Instructional or Access Area | Standard Tools | Modifications and Accommodations of Task and Expectations | Assistive Technology Solutions |
|--|---|---|---|
| Math: Sample Tasks: Identify numbers in isolation and sequence Comprehend basic math concepts Complete basic calculations (addition, subtraction, multiplication, and division) Complete complex math calculations Complete math word problems Tell time to the hour, half-hour, etc. using an analog and/or digital clock Calculate passage of time Identify coins and bills Demonstrates understanding of coin and bill value Utilize money to purchase items Utilize coins and bills to make appropriate change | Manipulatives (beads, etc.) Abacus Number line Math fact sheet (e.g. multiplication facts) Calculator Instructional software to remediate and enhance specific math skills | Change format of assignment (e.g.: write answers only) Peer/adult reading of problem and recording of answer Reduce number of problems Provide additional spacing between problems Provide additional time to complete tasks Increase size of print through photocopying Change complexity of material (e.g. separate problems by operations required) Teacher/peer support for reading and assistance | Modified paper (bold line, enlarged, raised line, graph paper, etc.) Talking calculator with speech output Calculator with large print display Calculator with large keypad Calculator with embossed output (e.g. Braille N Speak) Computer based on-screen calculator Electronic math worksheet software with adaptive input and output as needed (e.g. MathPad, Access to Math, and Study Works) Adapted measuring devices (e.g. devices with speech output, large print display, or tactile output) |
| Study Organizational Skills: | Instructional materials, including software to remediate deficit areas, to teach compensation strategies, and focus on strengths | Assignment sheet provided by peer and/or adult Outlines of key points Student schedule or checklist Positioning student strategically within classroom environment Timers Student self monitoring sheets | Print or picture schedule Organizational aids (e.g. Color coding, appointment book, etc.) Tape recorder Electronic organizer/personal digital assistant (e.g. Step Pad, PalmPilot) Computer based electronic organizer with adapted input and output provided as needed Speech prompting device |

| Instructional or Access Area | Standard Tools | Modifications and Accommodations of Task and Expectations | Assistive Technology Solutions |
|--|---|---|--|
| Sample Tasks: Follow verbal directions Listen to stories, books, etc. and answer comprehension questions Listen to classroom discussion and apply information (answer questions, record notes, etc) Listen to teacher lecture and apply information (answer questions, record notes, etc) Listen to verbally presented information and retell with correct sequencing and facts Listen to videos to gather information about current instructional topics Respond to environmental stimuli appropriately (someone knocking on classroom door, bell ringing, fire alarm) | Television Video player Cassette recorder/player Headphones for clarity of sound and blocking of extraneous noises for cassette/ television Overhead projector to provide visual outline during note-taking Closed captioning access to caption ready television and video presentations | Preferential seating Use teacher proximity Elimination of extraneous noise (air conditioner) Break directions into smaller steps/segments Use verbal prompts Use gestures Pre-teach vocabulary and/or components of the lesson Audio-tape verbally presented information for repeated presentation Use visual aids (picture symbols, diagrams, maps) to illustrate key points Provide a written outline of lecture Use a peer note-taker to record notes in class Provide print copy of script in videotapes Provide sign language/oral interpreter | Personal amplification system Classroom sound field system Auditory trainer Personal hearing aids Tape recorder with indexing capability Smart Board for transferring teacher written notes to student computer for viewing and printing and viewing Environmental alert system Voice to text software application for converting teacher lecture to text Closed captioning on non-caption ready instructional materials Real time captioning of class lecture and discussion |
| Oral Communication: Sample Tasks: Gain attention of peers/adults within environment Express basic wants/needs Request assistance as needed Provide appropriate greetings Participate in conversation with peers/teachers Respond appropriately to teacher/peer questions and/or comments Provide oral report in class on assigned topic Inform others of events, topics, etc | Organizing diagram for presentations | Interpreter Verbal prompts Modeling appropriate skills Repetition of spoken answers Additional response time Provide questions before time Accepting shortened responses | Speech enhancing devices (e.g. amplifiers, clarifiers) Augmentative communication solutions (e.g. object based communication displays, picture communication boards, books, and wallets, talking switches, dedicated augmentative communication devices, and integrated computer based augmentative communication solutions-all with adaptive input as needed) Sign language |

| Instructional or Access Area | Standard Tools | Modifications and Accommodations of Task and Expectations | Assistive Technology Solutions |
|---|---|---|---|
| Aids to Daily Living: Sample Tasks: Feed self using appropriate utensils Drink using appropriate utensils Prepare simple snack Prepare basic meal Dress and/or undress self using appropriate tools Complete personal hygiene and grooming tasks (brushing teeth, hair, etc.) Toilet self Perform simple household chores | Eating utensils (e.g. spoon, cup, etc.) Personal hygiene tools (ex: toothbrush, comb, brush, etc.) Toileting supplies (ex: tissue) Bathroom rails and adaptive faucet handles Cleaning materials and appliances | Verbal prompts Modeling appropriate skills Picture cures and prompts Additional time to complete tasks Modification of task length and complexity | Adapted eating aids (e.g. grips for standard eating utensils, adapted cups/glasses, etc.) Feeding machines Adapted dressing aids (e.g. button holers, pulls for zippers, Velcro fasteners, etc.) Adapted cooking and food preparation aids (e.g. blender attached to power control unit, adapted pouring handles, etc.) See other sections of this document for leisure, vocational, mobility, and learning aids.) Adapted household cleaning tools and appliances |
| Recreation and Leisure: Sample Tasks: Participate in play activities Participate in leisure activities (ex: look at/read book or magazine, listen to music, etc.) appropriately Manipulate and/or operate toys, tools, and/or electronic appliances required for participation in leisure activities appropriately | Puzzles Games Toys Music (e.g. tape player, CD-ROM, etc.) | Verbal prompts Adult peer assistance Modeling appropriate skills Cooperative participation with Game modification | Knobs for puzzles Adapted crayon holders Adapted books Adapted music with symbols Raised line coloring sheets Spinners for games Switch accessible toys (commercially available or switch accessible through switch interface) Environmental control devices Power control units and battery adapter devices Adaptive sports equipment Computers with adaptive input devices as needed and appropriate software to address leisure skills |

| Instructional or Access Area | Standard Tools | Modifications and Accommodations of Task and Expectations | Assistive Technology Solutions |
|---|---|--|---|
| Pre-vocational and Vocational: Sample Tasks: Complete assigned tasks (ex: filing, sorting, assembly, etc.) within designated timelines Utilize tools, manipulatives, and/or equipment to complete tasks Complete single and multiple step tasks | Sorting and assembling materials Office equipment Computer with standard office applications Timers and watches | Verbal prompts Picture and word cues Modeling appropriate skills Cooperative participation with peers and adults Student self-monitoring sheets Modification of task length and complexity | Individualized task and material modifications to meet student needs Computer with adaptive input devices as needed and appropriate software to address pre-vocational or vocational needs Vibrating and talking watches and timers Auditory prompting with and without visual display |
| Seating, Positioning, and Mobility: Sample Tasks: Move about/ambulate about the classroom, school, and/or community Manipulate educational materials as required in assigned activities Maintain appropriate seating/position for participation in relevant activities | Classroom chairs, desks and tables | Limit mobility requirements through careful scheduling of daily activities (order, location, etc.) Peer and adult assistance Modification of requirements based upon student's daily energy level and the task to be completed | Adaptive classroom equipment (e.g. prone and supine standers, side lyers, adapted chairs with seating modifications and support, etc.) Adapted tables and desks Walkers Crutches/canes Manual wheelchairs Power wheelchairs Laptrays and equipment mounts |

PLEASE NOTE:

The Georgia Project for Assistive Technology (GPAT) has developed this document which lists samples of functional tasks required in schools such as writing, reading etc and provides examples of common standard classroom tools, modifications and accommodations of tasks and expectations, and possible AT solutions. This framework is often useful for ARD Committees to use to get started in the consideration process. GPAT also has an online version of this form that has **video links** that provide additional information about classes of AT tools. http://coefaculty.valdosta.edu/spe/ATRB/AT considerati resource.htm

Assistive Technology Websites

ABLEDATA

http://www.abledata.com

ABLEDATA is sponsored by the National Institute on Disability and Rehabilitation Research, U.S. Department of Education. The searchable ABLEDATA database contains over 21,000 products.

Alliance for Technology Access (ATA)

http://www.ataccess.org

The ATA provides AT information and support services to children and adults with disabilities.

ATSTAR Program

http://www.atstar.org

The Assistive Technology – Strategies, Tools, Accommodations and Resources (ATSTAR) Program is designed to increase AT expertise through technology-enhanced learning environments.

Assistive Technology Industry Association (ATIA)

http://www.atia.org

The Assistive Technology Industry Association is an organization of manufacturers, sellers or providers of technology-based assistive devices and/or services. The organization sponsors the ATIA annual conference and the Assistive Technology Outcomes Journal.

Assistive Technology Training Online (ATTO)

http://www.at-training.com

The Assistive Technology Training Online Project provides internet-based training in both general and specific areas of adapted computer use.

California State University at Northridge, Center on Disabilities (CSUN)

http://www.csun.edu/cod/

Located at California State University, Northridge, the Center on Disabilities develops and publishes materials of interest to the field of disability and sponsors conferences, seminars, and workshops.

Center for Applied Special Technology (CAST)

http://www.cast.org

CAST is an organization that works to expand learning opportunities for all individuals, especially those with disabilities, through the research and development of innovative, technology-based educational resources and strategies.

Closing the Gap

http://www.closingthegap.com

This web site spotlights resources in computer technology, special education and rehabilitation. The Resource Directory is a database of over 2000 hardware and software products which is web searchable. Links to vendors are included.

Consortium for Citizens with Disabilities (CDC)

http://www.c-c-d.org/

CDC is a coalition of approximately 100 national disability organizations working together to advocate for children and adults with disabilities in all aspects of society. The site provides links to a wide range of organizations and resources related to disability issues.

Council for Exceptional Children (CEC)

http://www.cec.sped.org

CEC is an international professional organization dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. Services provided include professional

development opportunities and resources, journals and newsletters with information on new research findings, classroom practices that work, federal legislation, and policies and sponsorship of conventions and conferences.

Disabilities, Opportunities, Internetworking, and Technology (DO IT) http://www.washington.edu/doit/ DO-IT spotlights programs and resources that promote the use of technology to maximize independence, productivity and participation of people with disabilities.

Georgia Project on Assistive Technology (GPAT)

http://www.apat.org

GPAT is a project of the Georgia Department of Education: Division for Exceptional Students, providing a range of technical support services in the area of assistive technology to local school system personnel and their students. Contains helpful resources, forms, and a video-linked consideration guide.

Guide to the Individualized Education Program

http://www.ed.gov/parents/needs/speced/iepquide/index.html

This publication is provided by the U.S. Dept. of Education and contains useful information related to developing effective IEPs.

LD Online

http://www.ldonline.com

This interactive website provides resources on learning disabilities to parents, teachers, children and other professionals. The site includes books, articles, videos and a newsletter.

LD Resources

http://www.ldresources.com

This site provides resources for people with learning disabilities. Materials include essays, articles, resources and other materials that can be used for non-commercial purposes only.

National Assistive Technology Research Institute (NATRI)

http://natri.uky.edu

The National Assistive Technology Research Institute (NATRI) conducts assistive technology (AT) research, translates theory and research into AT practice, and provides resources for improving the delivery of AT services.

National Center for Technology Innovation (NCTI)

http://www.nationaltechcenter.org/

NCTI seeks to broaden and enrich the field of technology for the education of students with disabilities by providing resources and promoting partnerships for the development of tools and applications by developers, manufacturers, producers, publishers and researchers.

Office of Special Education Programs (OSEP), U.S. Department of Education

http://www.ed.gov/about/offices/list/osers/osep/index.html?src=mr

OSEP is dedicated to improving educational results for children with disabilities. The site provides information on Federal policy, national grant projects, national studies, and statistics related to disabilities and other related resources.

Oregon Technology Access Program (OTAP)

http://www.otap-oregon.org/

OTAP provides training, information, technical assistance and resources regarding the uses of technology for children with disabilities.

Partnerships for Assistive Technology with Indiana Schools (PATINS)

http://www.patinsproject.com/

Sponsored by the Indiana Department of Education, this site provides educator resources for assistive technology and a lending library

Pennsylvania Training and Technical Assistance Network (PaTTAN)

http://www.pattan.k12.pa.us/

PaTTAN supports the Pennsylvania Bureau of Special Education and builds the capacity of LEAs to provide services to students receiving special education services. AT resources and links provided.

Quality Indicators for Assistive Technology (QIAT)

http://www.giat.org

The QIAT Consortium is a national grassroots group dedicated to identifying, disseminating, and implementing a set of widely applicable quality indicators for assistive technology services in school settings. The QIAT listserv provides a national forum for discussion of AT issues.

Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) http://www.resna.org/

RESNA is an interdisciplinary association that provides a credentialing program for assistive technology service providers. The RESNA Technical Assistance Project provides technical assistance to the 56 state/territory programs as authorized under the AT Act of 1998.

Technology and Media (TAM) Division of CEC

http://www.tamcec.org

TAM is a division of the Council for Exceptional Children (CEC) that works to promote the effective use of technology and media for individuals with exceptional educational needs. The site includes information on conferences and professional publications including the JSET Journal.

Texas Assistive Technology Network (TATN)

http://www.texasat.net

TATN is a collaborative network between the twenty (20) education service centers in Texas with Region 4 Education Service Center in Houston providing statewide leadership. The site provides links, resources, and training materials.

Texas Education Agency (TEA)

http://www.tea.state.tx.us/

The TEA website provides information about TEA roles and responsibilities such as accountability, assessment, curriculum and educational programs, and education law and rules.

Texas Technology Access Project

http://techaccess.edb.utexas.edu

The Texas Technology Access Project provides information, conducts training and technical assistance and works with policy makers to support children and adults with disabilities in their efforts to acquire and use technology as a routine part of day-to-day living.

The University of Texas, Department of Special Education, College of Education

http://www.edb.utexas.edu/coe/depts/sped/

This site provides information and useful links to resources and for assistive technology information.

Wisconsin Assistive Technology Initiative (WATI)

http://www.wati.org

WATI is a statewide project funded by the Wisconsin Department of Public Instruction to help all school districts develop or improve their assistive technology services. It includes information on best practices, training materials, resources, sample forms, and provides links to other sites related to AT.