Arizona Department of Education
Exceptional Student Services

Assistive Technology Consideration Guide

Assistive Technology Consideration Resource Guide

All information in this guide is provided to assist teams in considering assistive technology (AT) in the development, review, and/or revision of a student's individual educational program (IEP). This document provides a starting point for teams to identify potential assistive technology solutions within specific areas of the curriculum. This guide is not prescriptive; the IEP team must identify all necessary assistive technology devices and services for each student individually, using a framework that considers the student, the environment, and the tasks. This document is available for download at the AT webpage. **T**he assistive technology devices listed in this document are included to provide examples of different types of assistive devices that may be required in order for students with disabilities to access a free and appropriate public education. **This document does not include all assistive technology devices within each category and inclusion of a particular device does not constitute endorsement by the Arizona Department of Education.**

Many of the items referenced in this guide are available for checkout from the Arizona Department of Education/Exceptional Student Services' AT Loan Library. For additional information about the AT loan program, please visit the library webpage.

The Arizona Department of Education/Exceptional Student Services wishes to thank the Georgia Department of Education for its generosity in allowing us to revise and distribute Arizona's version of the Georgia Department of Education resource guide.
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Instructional or Access Area: **Reading**	Standard Tools	Accommodations, Modifications, Strategies	Assistive Technology Solutions

Sample Tasks:
• Book handling
• Identify letters/numbers
• Recognize/read name
• Read sight words
• Decode words
• Read environmental text/functional words
• Read words, sentences, and/or longer passages
• Comprehend age/grade appropriate reading materials
    o literal meaning
    o main idea
    o inferential meaning
• Summarize key points
• Read with fluency
• Retell story with key details in correct sequence
• Read and comprehend complex literary and informational texts independently and proficiently
	• Computer/tablet
	• Textbooks
	• Digital text
	• Videos with closed captions
	• Interactive whiteboard
	• Worksheets
	• Projected information
	• Websites
	• Document camera
	• Presentations such as PowerPoint, Keynote, Slides
	• Test materials
		• Extended time
		• Have text read aloud
		• Highlight to emphasize key points
		• Adjust characteristics such as font, size, and contrast
		• Adjust spacing between letters, words, and/or lines
		• Use high-interest, low-reading-level materials
		• Simplify complexity of text
		• Customize vocabulary
		• Decrease length of assignment
		• Pre-teach vocabulary
		• Audiobooks
		• Provide two sets of textbooks
		• Provide pictures or videos to supplement print materials
		• Sensory considerations
			• Page fluffers/page turners
			• Slant board and book holders
			• Tracking tools such as reading window, finger, popsicle stick
			• Online dictionary/spellchecker with speech output
			• Adapted books
			    o talking pens
			    o recording stickers
			    o tactile books
			• Reading pens
			• Audio books
			• Digital text/ Text-to-speech
			• e-Book readers
			• Talking word-processing programs
			• Screen reader
			• Computer-based advanced reading and writing aids
			• Optical Character Recognition
			• Braille
			
			For students with orthopedic impairment, input/output methods such as special keyboards, keyguards, keyboard utilities, touchscreen, adaptive mice, and switch access must be considered.

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Instructional or Access Area: **Writing**	Standard Tools	Accommodations, Modifications, Strategies	Assistive Technology Solutions
Sample Tasks: • Print name • Copy letters/words/numbers for skills practice • Complete writing tasks with correct spelling • Write words from memory • Copy words from book or worksheet • Copy notes from board or overhead • Complete written worksheets • Complete written tests • Take notes • Generate creative/spontaneous writing samples • Enter number in correct location in calculation problems • Copy math problems • Write dictated math calculation problems with correct alignment • Copy diagrams and graphs • Create/plot linear and quadratic equations	• Crayon/marker • Pencil • Pen • Letter and number strip • Clipboard • Word processing software with grammar and spell checker • Instructional websites to remediate and enhance specific writing skills • Graphic organizers	• Allow extra time • Oral dictation • Provide peer notetaker • Use NCR notebooks • Change format of assignment to meet needs of student—multiple choice, matching word banks, fill-in-the-blank, short answer • Provide typed outline or copy of lecture notes to student • Highlight key points on digital/print copy of notes • Decrease length/complexity • Supply word banks, sentence starters, and cloze format • Decrease required responses	• Pencil grips or other adapted writing aids • Adapted paper/paper holders/spacing tools • Slant board • Personal dry erase board • Nonslip Material under writing surface • Portable writing devices • Note-taking device/tools • Spell/grammar checks • On-screen keyboard with scanning or eye-gaze access • Speech-to-text tools • Printed/digital Graphic Organizers • Text-to-speech for editing • Chrome extensions • Apps • Open-source software/apps • Word-prediction software/apps • Computer-based reading and writing tools *For students with orthopedic and/or visual impairment, input/output methods such as special keyboards, keyguards, keyboard utilities, touchscreen, adaptive mice, switch access, Braille input, screen enlargement, and text or screen reading software must be considered.*

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Instructional or Access Area: Math	Standard Tools	Accommodations, Modifications, Strategies	Assistive Technology Solutions
Sample Tasks: • Identify numbers in isolation and sequence • Comprehend basic math concepts • Complete basic calculations • 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 • Understanding value of coins and bills • Use money to purchase items • Use coins and bills to make appropriate change • Manage peer-to-peer payment apps • Manage personal finances	• Manipulatives (e.g., beads) • Abacus • Number line • Math facts sheet • Calculator • Instructional software to remediate and enhance specific math skills • Smart phone apps and online banking	• Change format of assignment (e.g., write answers only) • Have peer/adult read problem and record answer • Arrange additional spacing between problems • Provide additional time to complete tasks • Change complexity of material (e.g., separate problems by operations required) • Provide teacher/peer support for reading and other assignments • Reduce number of problems • Calculators that provide step by step instructions	• Increased print/font size • Adapted number lines • Modified paper (such as bold line, graph paper, raised line) • Digital or physical manipulatives • Adaptive Calculators: talking, large key/display, high contrast, Braille • Apps and websites with built-in accessibility options • Adapted keyboard/number pad • Adapted measuring devices such as large print measuring cups, measuring wheels, laser measurement apps/devices, talking tape measures, Braille labels • Math notation tools *For students with orthopedic and/or visual impairment, input/output methods such as special keyboards, keyguards, keyboard utilities, touchscreen, adaptive mice, switch access, Braille input, screen enlargement, and text or screen reading software must be considered when needed.*

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Instructional or Access Area: **Listening**	Standard Tools	Accommodations, Modification, Strategies	Assistive Technology Solutions
Sample Tasks: • Respond to environmental stimuli appropriately (e.g., someone knocking on classroom door, bell ringing, fire alarm) **In remote or face-to-face environments:** • Follow verbal directions • Listen to stories, books, etc., and answer comprehension questions • Listen to classroom discussion and apply information • Listen to teacher lecture and apply information • Focus on/understand verbal responses by classroom peers • Listen to verbally presented information and retell with correct sequencing and facts • Note-taking • Listen to podcasts, audiobooks, videos	• Digitally recorded material • Headphones for clarity of sound and blocking of extraneous noises • Document camera to provide visual outline during note taking • Closed-captioning access to caption-ready television and video presentations • Podcasts • Interactive whiteboard	• Arrange preferential seating • Use teacher proximity • Improve classroom acoustics • Eliminate extraneous noise • Break directions into smaller steps/segments • Use gestures • Pre-teach vocabulary and/or components of the lesson • Use visual aids to illustrate key points • Provide a written outline of lecture • Provide copy of notes/use a peer note taker • Provide copy of script for videos • Provide sign language/oral interpreter, in-person or remotely	• Personal amplification system • Smartphone or tablet with videoconferencing for ASL speakers • Whiteboard/markers • Classroom sound field system • Hearing aids • Smart pen • Environmental alert devices • Speech-to-text tools for lecture and instruction • Open/closed captioning • Real-time captioning services such as CART to transcribe class lecture and discussion (in-person or remote) • CCTV focused on speaker's face • Simultaneous speech-to-text and text-to-speech such as Ubi Duo

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Instructional or Access Area: **Speaking**	Standard Tools	Accommodations, Modifications, Strategies	Assistive Technology Solutions
Sample Tasks: • Gain attention of peers/adults within environment • Initiate/respond to greetings • Express basic wants/needs • Request assistance as needed • Reject/decline • Participate in conversations • Respond appropriately to teacher/peer questions and/or comments • Present oral report in class on assigned topic • Learn and use vocabulary specific to the curriculum • Inform others of events or topics • Terminate conversation	• Organizing diagram for presentations • Word banks • Personal/visual dictionary • Written language for receptive and expressive communication	• Use interpreter • Provide verbal prompts • Model appropriate skills • Repeat spoken answers • Allow additional response time • Provide questions ahead of time • Accept shortened responses/gestures	• Speech-enhancing devices (e.g., amplifiers, clarifiers) • Pacing boards/initial letter cueing boards • Low-tech augmentative/alternative communication systems such as object-based communication displays, picture communication boards, books, wallets • Mid-tech recorded devices • AAC Apps for iPad, tablets • Dedicated augmentative communication devices • Alternative access tools such as keyguard, stylus, and switches

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Instructional or Access Area: **Seating, Positioning, and Mobility**	Standard Tools	Accommodations, Modifications, Strategies	Assistive Technology Solutions
Sample Tasks: • Move about/ambulate around the classroom, school, and/or community • Manipulate educational materials as required in assigned activities • Maintain appropriate seating/ position for participation in relevant activities • Access computer/Internet	• Standing desk • Classroom chairs, desks, and tables • Footrest to maintain proper seating • Computer, keyboard, mouse	• Limit mobility requirements through careful scheduling of daily activities (e.g., order, location) • Provide peer and adult assistance • Modify requirements based upon student's fluctuating energy level • Modifications to standard tables, desks, and chairs	• Adaptive classroom equipment such as prone and supine stander, side lyer, beanbag chair, adapted chair with seating modifications and support • Slant board/bookstand • Adapted table and desk • Mounting systems • Walker • Crutches/cane • Manual wheelchair • Power wheelchair • Lap tray and equipment mount • Adapted vehicle • Lifts for transfers • Reacher/grabber

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Instructional or Access Area: **Activities of Daily Living**	Standard Tools	Accommodations, Modifications, Strategies	Assistive Technology Solutions
Sample Tasks: • Feed self with appropriate utensils • Drink using cup/straw • Prepare simple snack • Prepare basic meal • Dress and/or undress self • Complete personal hygiene/grooming tasks • Perform simple household chores	• Eating utensils • Cups/straws • Personal hygiene tools such as toothbrush, comb, brush • Bathroom rails and adaptive faucet handles • Cleaning materials and appliances	• Verbal prompts • Model/video model appropriate skills • Use picture cues and prompts • Give additional time to complete tasks • Modify task length and complexity • Have student complete part of task independently	• Adapted eating aids such as grips for utensils, adapted cups/glasses, feeding machines, leveling utensils, suction cup plates/cups, scoop dish • Adapted dressing aids such as button hooks, pulls for zippers, Velcro fasteners, shoehorns • Adapted cooking and food preparation aids such as blender attached to power control unit, adapted pouring handles, rocker knife • Adapted household cleaning tools and appliances • Raised toilet seats, grab bars, motion detector sink/toilet • Automatic door opener

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Instructional or Access Area: **Studying and Organization**	Standard Tools	Accommodations	Assistive Technology Solutions
Sample Tasks: • Write down assignments from the board/given verbally • Follow organizational system • Keep track of assignments • Complete and turn in assigned tasks on time • Gather and keep track of appropriate materials/supplies for class activities • Request assistance when needed • Follow multiple-step directions • Maintain to do list • Maintain dedicated study time • Self-management	• Agendas/planners • Calendars • Classroom reminders • Computer/tablet/word processor • Document camera • Interactive whiteboard • Notebooks • Parent/student portals • Rubrics • Social learning networks • Study guides • Syllabus • Electronic file/storage system	• Peer/adult assistance • Daily planner • Flexible/optimal seating options • Sensory supports (auditory, tactile, visual, movement) • Self-monitoring sheets • Oral and printed directions • Outline of key points • Assignment timelines • Print copy of steps in a task • Model of finished product • Schedules or checklists • Extra supplies of classroom or work materials • Color coding • Highlighters/sticky notes • Digital flash cards • Dedicated study time	• Visual supports such as a picture schedules and labels • Digital/auditory reminders • Organizational aids such as color coding, personalized planners/calendars, schedules, transparent folders • Digital recorder/Smart pen • Digital flashcards with speech-to-text • Timers (physical or digital) • Digital highlighters • Highlighter Tape • Digital images of assignments written on board or peer's planner • Graphic Organizers • Google Drive/One Drive features • Apps/ Browser extensions • Reading/writing software with features such as editing tools, word prediction, and text-to-speech with highlighting

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Instructional or Access Area: **Recreation and Leisure**	Standard Tools	Accommodations, Modifications, Strategies	Assistive Technology Solutions
Sample Tasks: • Participate in play and sports • Participate in indoor/outdoor leisure activities • Manipulate and/or operate toys, tools, and/or electronic appliances required for participation in leisure activities • Use the computer/tablet/internet • Watch TV/movies • Streaming TV shows/movies- Netflix, Hulu, HBO, etc. • Participate in social media and online communities	• Books/magazines • Puzzles • Games • Toys • DVD player • Computer/tablet • Sporting and exercise equipment • Mobile devices: videos, music, television, movies, books, magazines	• Use verbal/visual prompts • Provide adult/peer assistance • Model/Video Model appropriate skills • Modify games/activities • Change/simplify rules	• Knobs for puzzles • Card holders • Adapted crayon holders/scissors • Adapted books • Adapted music with symbols • Raised line coloring sheets • Spinners for games or adapted dice throwers • Switch accessible toys (commercially available or switch accessible through switch interface) • Environmental control devices • Power control units and battery adapter devices • Adapted sports equipment *For students with orthopedic and/or visual impairment, input/output methods such as special keyboards, keyguards, keyboard utilities, touchscreen, adaptive mice, switch access, Braille input, screen enlargement, and text or screen reading software must be considered when needed.*

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Instructional or Access Area: **Prevocational and Vocational**	Standard Tools	Accommodations, Modifications, Strategies	Assistive Technology Solutions

Sample Tasks:
• Complete assigned tasks (e.g., filing, sorting/assembling) within designated timelines
• Use tools, manipulatives, and/or equipment
• Complete single and multiple step tasks
• Stays on task until work is complete
• Stays on task without supervision
• Self-advocates
• Procurement of accessible instructional materials
• Contact postsecondary service providers to obtain assistance
• Manage finances
• Safely navigates community and local environments
• Completes steps to obtain a job
• Being punctual
	• Computer/tablet with standard office applications
	• Timers and watches
	• Equipment needed for work
	• Office equipment
	• Work manuals
	• Pencil and paper
		• Peer/adult assistance
		• Self-monitoring sheets
		• Model skills
		• Daily planner
		• Teach regularly traveled routes
		• Individualized modifications
		• Location identifiers
		• Orientation to environment
		• Sensory supports
		• Sighted guide for visually impaired
		• Student self-monitoring sheets
		• Teacher modeling
		• Verbal or visual cues
		• Video modeling
		• Work checklist
		• Modify task length and complexity
			• Adapted seating
			• White cane
			• Vibrating/talking watches/timers
			• Visual schedules
			• Color-coded schedules with work tools
			• Adapted workstation
			• Device, software or apps
			   ○ daily planners
			   ○ outlining/graphic organizers
			   ○ financial management
			   ○ screen enlargement
			   ○ document scanner
			   ○ optical character recognition
			   ○ Braille/embosser
			   ○ auditory reminders
			   ○ digital recorder/player
			• Augmentative and Alternative Communication (AAC)
			
			For students with orthopedic impairment, input/output methods such as special keyboards, keyguards, keyboard utilities, touchscreen, adaptive mice, switch access input, and text or screen reading software must be considered when needed.