



Wyoming Institute for Disabilities (WIND)

Wyoming Assistive Technology Resources (WATR)

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**Assistive Technology Consideration Work Group Recommendations
May 2014**

Group members: Barbara Locke, Assistive Technology Professional-WATR; Chris Victor, Speech Language Pathologist-Big Horn School District #1; Casey Widhalm, Special Education Teacher-Fremont Co. School District #1; Anne Bauers, Speech Language Pathologist -Sheridan School District #2; and Molly Hanson, Assistive Technology Professional/Special Education Teacher-Sublette Co. School District #1.

Reviewed by: Canyon Hardesty, MS, CHES, WATR Deputy Director

The recommendations from the Consideration Work Group were originally submitted for review on December 18, 2013. However, Consideration Work Group was then asked to recommend one form per stage of the Problem-Solving Process that pertained to the consideration of assistive technology. In the meantime, Daniel Cochrane incorporated the original recommendations into his process and provided the group with this new version updated in December 2013.

The opportunity to revisit the problem-solving process lead the Consideration Work Group members to limit their discussions only to the portions of the Process that specifically addressed assistive technology consideration. Therefore, we did not address steps of the Process involving Plan Development/Implementation beyond Step 5-Consideration of Tools as it pertains to problem analysis.

The Problem-Solving Process is a cycle. As such, we recommend Individual Education Teams continually use this process, at a minimum, each time they review student progress, if not more frequently. The Consideration Work Group feels the seven-point process could be applied to a student's learning process analysis from kindergarten through high school graduation.

Referral into the Problem-Solving Process can be made in a variety of ways. The group advised using a "framing the question" approach that requires the team look reflectively at the critical parts of an activity or task with which a student is experiencing difficulties. The approach requires teams to ask initial referral questions that include, "Are there tool(s) to help a student meaningfully participate and make progress in the general curriculum?" See *Referral Resource, Form A*.

The Consideration Work Group urges Individual Education Teams to consider the use of assistive technology along the continuum, from low-technology to high-technology items, encouraged by the least restrictive intervention. To aid teams in moving along a continuum of considerations, the Group recommends the *Consideration Guide, Form B*.

Individual Education Teams are strongly encouraged to document the consideration process they discuss during an Individual Plan meeting (IFSP, IEP, or ISP). Documentation could be attached to the Plan, and provide reviewers with a better idea of the process used in making recommendations found in the student's plan. The Consideration Work Group recommends the *Assistive Technology Consideration Guide, Form C* and the *AT Checklist, Form D* as the tools IEP teams can use to document their discussions. The Group continues to work to simplify the process and provide guidance for teams as they begin their discussion about assistive technology consideration.

References:

Bowser, G. & Reed, P. (2012) *Education Tech Points: A Framework for Assistive Technology, 3rd Edition*. CATO, Winchester, OR., www.educationtechpoints.org.

Cochrane, Daniel. (2014). *Integrating Assistive Technology into the Problem-Solving Process*. Retrieved from www.cusd2.org.

Wisconsin Assistive Technology Initiative. (2009). *Assessing Student Needs for Assistive Technology, 5th Edition*. Retrieved from <http://wati.org>.



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**Assistive Technology (AT) Consideration Process
Assistive Technology Question Worksheet: Referral Resource, Form A**

Student Name: _____

1. What is the task the student needs to accomplish?

2. In what environments is this task done?

3. What is the student's present level of participation on this task?

4. What is the student's present level of performance on this task?

5. Are there environmental concerns or other issues that need to be taken into consideration?

6. Are there specific tools or strategies that a team member believes might be helpful with this functional life skill?

7. What questions will the team address?



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Assistive Technology (AT) Consideration Process

Assistive Technology Consideration Guide: Form B

Reading

Instructional Tasks	Standard Tools	Modification/Accommodations of Tasks and Expectations	AT Solutions (Consider AT Evaluation)
<p><i>Sample tasks:</i></p> <ul style="list-style-type: none"> • Identify letters in isolation and sequence • Recognize/read name • Read basic primer sight words • Read functional words • Read target words within sequence • Comprehend age/grade appropriate reading materials • Read text and worksheet with comprehension 	<ul style="list-style-type: none"> • Textbooks • Worksheets • Printed information on broad/overhead • Tests in printed format • Computer software for basic reading/writing/comprehension 	<ul style="list-style-type: none"> • Extra time for completion • Chapter outlines • Reduced reading level on assignments (high interest, low level) • Shorten carrel for solo work • Study guides • Custom vocabulary lists • Peer/adult reading assistance • Eyeglasses • Hand-held magnifiers • Enlarged print on assignments/instructions • Colored overlays • Highlight key words/concepts • Large print books • Change spacing-manual or electronic 	<ul style="list-style-type: none"> • Page fluffers • Slant boards, book holders • Tracking strategies (e.g. reading window, bar magnifier) • Audiobooks (recordings for the students who are blind or dyslexic) • Closed circuit TV to enlarge books • Screen enlarger for computer text (placed over monitor) • Text enlargement software (e.g. ZoomText)

<ul style="list-style-type: none"> • Read from broad or overhead • Read from computer display • Read longer sample with comprehension and without fatigue • Answer questions from written material • Make inferences from written material 		<ul style="list-style-type: none"> • Use markers/rulers to guide reading • Pictures/graphics • Symbols/sign language cues 	<ul style="list-style-type: none"> • Electronic dictionary/speaking spellchecker • Reading pen • Computer with talking word processor (e.g. Clicker 4, Writing with Symbols) • Computer with screen reading system (e.g. JAWS, ReadPlease, Talk-t-Me) • Computer with advanced reading aids (e.g. Kurzweil 3000, WYNN) • Solutions for converting text into alternative format (e.g. scanner with OCR software, Braille translation software, printer and embosser, Braille refreshable display, tactile graphics, etc.) • Video description (verbal description of visual information from videotapes, TV, etc.)
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Handwriting

Instructional Tasks	Standard Tools	Modification/Accommodations of Tasks and Expectations	AT Solutions (Consider AT Evaluation)
<p><i>Sample Tasks:</i></p> <ul style="list-style-type: none"> • Write letters in isolation • Recognize different types and styles of letter formation (i.e. capitals, small case, cursive, print, etc.) • Copy • Write basic words • Write basic phrases • Write on different surfaces (paper, dry erase boards) • Write with different types of modalities (plastic letters, silly putty, cut out letters) • Write with different spacing (kindergarten paper, regular ruled paper, blank paper, college ruled paper) • Write with different utensils (pens, pencils, markers) • Record notes • Write with correct spacing and alignment • Write longer samples without fatigue 	<ul style="list-style-type: none"> • Kindergarten paper • Pencils • Pens • Markers • Modalities • Worksheets • Tests • Keyboards • Computers with writing software • Webbing-concept mapping strategies • Flashcards • Alphabet strip • Print dictionary • Computer with built-in spell checker • Instrumental software to remediate and enhance basic phonics and spelling skills 	<ul style="list-style-type: none"> • Extra time to complete work • Different writing utensil • Pencil/pen with special grip • Special paper with larger or smaller lines • Raised line paper • Shorthand • Reduce amount of writing material • Increased time for completing assignments • Reduced level of writing from cursive to print or vice-versa • Copied notes • Dictionary/glossary access • Spell checker • Computer with spell checker • Keyboard access • Special modified keyboard access • Switch access keyboard • Computer access • Peer/adult writing assistance • Personal/custom dictionary • Reduce number of spelling words 	<ul style="list-style-type: none"> • Pencil grip or other 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 note taking • Portable word processor (e.g. PC-5, AlphaSmart, etc.) • Hand-held spellchecker with auditory output • Note taking devices (e.g. Braille, adapted tape recorder, Smartboard) • Computer with word processing software with spell/grammar checks (e.g. Microsoft Word) • Computer with word processing software and outlining/webbing software (e.g. Inspiration or Kidspiration, Draftbuilder)

<ul style="list-style-type: none"> • Write on a computer • Write to answer a question • Write to create a story/essay <p>Writing process: <i>Sample tasks:</i></p> <ul style="list-style-type: none"> • Write name • Copy 			<ul style="list-style-type: none"> • Computer with graphic-based word processor (e.g. Writing with Symbols) • Computer with talking word processing software (e.g. Write OutLoud, IntelliTalk, Clicker 4) • Computer with word prediction software (e.g. Co:Writer) • Computer with graphic based word processor (e.g. Writing with Symbols) Computer with physical supports
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Study and Organization

Instructional Tasks	Standard Tools	Modification/Accommodations of Tasks and Expectations	AT Solutions (Consider AT Evaluation)
<p><i>Sample tasks:</i></p> <ul style="list-style-type: none"> • Copy assignments from board • Record assignments from teacher dictation • Complete assigned tasks within designated timelines • Request teacher/peer assistance when needed • Has appropriate materials/supplies for class activities 	<ul style="list-style-type: none"> • Organizers for materials and desk • Planner • Highlighters • Post-It notes and/or flags • NCR paper for notes • Recorded instructions 	<ul style="list-style-type: none"> • Reduce clutter on desk • Clear, simple, directions, check comprehension • Prioritize tasks with time suggestions • Use peers tutors/volunteers • Attach assignments, schedule, checklist, timetable, etc. to desk • Allow separate settings for tests/assignments • Have student arrive early to go over day's plan, preview materials or tasks • Provide daily and weekly assignment sheets • Model the activity and provide examples • Break information into steps • Flashlight or light pointer • Home texts/materials for preview/review • Seating needs and position • Emphasize critical information • Teach study skills and self-monitoring • Use cooperative learning groups • Provide guide practice • Create routines for turning-in work 	<ul style="list-style-type: none"> • Print or picture schedules • Tape recorder • Electronic organizer • Speech prompting device • Record materials • Mini pocket/key chain recorders • Video tape lesson for later review • Software for manipulation of objects, concepts development • Calendar/schedule making software • Outline in word processors • Webbing, mind mapping software • Personal amplification system • Smart board • Wristwatch with alarm

		<ul style="list-style-type: none">• Provide essential fact list• Teach key direction works• Review and practice in real life situations• Plan and teach for generalization• Provide sequential directions• Use physical cues/gestures• Use supervised breaks• Use adjustable timetable• Use a variety of instructional strategies• Create posters• Write oral instructions down and keep in same place• Write schedule in notebook• Offer study carrel	
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Communication

Instructional Tasks	Standard Tools	Modification/Accommodations of Tasks and Expectations	AT Solutions (Consider AT Evaluation)
<p>Listening: <i>Sample tasks:</i></p> <ul style="list-style-type: none"> • Respond to environmental stimuli appropriately (knocking on classroom door, bell ringing, fire alarm, etc.) • Follow verbal directions • Listen to stories, books, etc., and answer comprehensive questions • Listen to classroom discussions and apply information • Listen to teacher lecture and apply information • Listen to verbally presented information and retell with correct sequencing and facts 	<p>Listening:</p> <ul style="list-style-type: none"> • Audio recorder/player • Headphones for clarity of sound and blocking of extraneous noises for cassette/TV/computer • Overhead projector to provide visual outline during note taking • Closed captioning access to caption ready TV and video presentations 	<p>Listening:</p> <ul style="list-style-type: none"> • Preferential seating • Teacher proximity • Eliminate extraneous noise (air conditioner) • Break directions into smaller step/segments • Use verbal prompts • Use verbal prompts/gestures • Pre-teach vocabulary and/or components of the lesson • Audio-tape verbally presented information for repeated presentation • Visual aids (picture symbols, picture schedules, diagrams, maps) • Provide written outline of lecture • Peer note-taker • Provide print copy of script in videotapes • Provide sign language/oral interpreter 	<p>Listening:</p> <ul style="list-style-type: none"> • Personal amplification system • Classroom sound field system • Auditory trainer • Personal hearing aids • Smart Board for transferring teacher written notes to student computer for viewing and printing • Environment alert system • Voice to text software for converting video to sign language • Closed captioning on non-caption ready instructional materials • Real time captioning of class lecture and discussion

<p>Oral Expression: <i>Sample tasks:</i></p> <ul style="list-style-type: none"> • Gain attention of peers/adults/support personnel in environment • Express basic wants/needs • Request assistance as needed • Provide appropriate greetings • Participate in conversation with peers/teachers/support personnel • Respond appropriately to teacher/peer/support personnel questions and/or comments • Speak with age appropriate articulation/fluency/voice • Provide oral report in class • Inform others of events, topics, etc. • Terminate conversation 	<p>Oral Expression:</p> <ul style="list-style-type: none"> • Organizing diagram for presentations • Carry pen and paper for writing 	<p>Oral Expression:</p> <ul style="list-style-type: none"> • Verbal prompts • Modeling appropriate skills • Repeating and clarifying spoken answers • Additional response time • Accepting shortened responses • Interpreter • Sign language 	<p>Oral Expression:</p> <ul style="list-style-type: none"> • Speech amplifier • Communication board/book • Tape recorded speech output communication devices with variable input options and range of number of messages that can be recorded, stored, and retrieved • Augmentative/alternative communication devices – dedicated communication devices and integrated computer based communication solutions • Artificial larynx
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Activities of Daily Living

Instructional Tasks	Standard Tools	Modification/Accommodations of Tasks and Expectations	AT Solutions (Consider AT Evaluation)
<p><i>Sample tasks:</i></p> <ul style="list-style-type: none"> • Feed self using appropriate utensils • Drink using appropriate utensils • Prepare simple snack • Prepare basic meal • Dress/undress self using appropriate tools • Personal hygiene & grooming tasks • Toilet self • Perform simple household chores 	<ul style="list-style-type: none"> • Standard equipment for activities of daily living • Eating utensils • Personal hygiene tools • Toileting supplies • Bathroom supplies • Bathroom rails & adaptive faucet handles • Cleaning materials • Use of appliances • Puzzles • Games • Toys music (tape/CD player, etc.) 	<ul style="list-style-type: none"> • Verbal prompts • Modeling appropriate skills • Picture cues and prompts • Additional time to complete tasks • Modification of task length and complexity • Adult/peer assistance 	<ul style="list-style-type: none"> • Adapted eating utensils (e.g. straws, built-in handles, plate guards) • Feeding machines • Dressing aids (e.g. button holers, sock guides, Velcro closures) • Adaptive watches, clocks, alarms • Transfer system • Adaptive driving equipment (e.g. hand controls) • Adaptive devices for cooking and cleaning chores

Recreation

Instructional Tasks	Standard Tools	Modification/Accommodations of Tasks and Expectations	AT Solutions (Consider AT Evaluation)
<p><i>Sample tasks:</i></p> <ul style="list-style-type: none"> • Participate in play activities • Participate in leisure activities • Manipulation/operate toys, tools, etc. • Operate appliances 	<ul style="list-style-type: none"> • Puzzles • Games • Toys • Books and magazines • Music (MP3/CD player, etc.) 	<ul style="list-style-type: none"> • Verbal prompts • Modeling appropriate skills • Picture cues and prompts • Adult/peer assistance • Cooperative participation • Game modification 	<ul style="list-style-type: none"> • Adapted toys, board games, playing cards, crayon holders, book holders, etc. • Switch accessible toys • Knobs for puzzles • Adapted books • Adapted music with symbols • Beeping balls, bases, Frisbees, etc. • Lane guides for track, swimming, bowling • Adjustable basketball hoops, wheelchair spoke guards, accessible weight training equipment, hand cycles, etc.

Pre-Vocational and Transition

Instructional Tasks	Standard Tools	Modification/Accommodations of Tasks and Expectations	AT Solutions (Consider AT Evaluation)
<p><i>Sample tasks:</i></p> <ul style="list-style-type: none"> • Complete assigned task (ex. Sorting, filing, assembly, etc.) • Utilize tools, manipulatives, equipment for a task • Complete single and multiple step tasks 	<ul style="list-style-type: none"> • Sorting and assembling materials • Officer equipment • Computer with standard office appliances • Timers and watches 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Individualized task and material modifications • Computer with adaptive input devices, software • Vibrating or talking watches and timers • Auditory prompting with and without visual display • Accessible testing • Transfer or ownership of devices to student/Vocational Rehabilitation office • Adaptive transportation • Home/workplace accommodations • Public transport, orientation • Involvement of VR for testing, training, education, job coaching

Orientation, Seating and Mobility

Instructional Tasks	Standard Tools	Modification/Accommodations of Tasks and Expectations	AT Solutions (Consider AT Evaluation)
<p><i>Sample tasks:</i></p> <ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Classroom desk, chairs, tables • Types of surfaces in classroom environment • Types and heights of chairs and tables • Beanbags • Storage units 	<ul style="list-style-type: none"> • 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 • Different height, type and size of seats • Clear/open environments • Objects to hold onto to allow for better body awareness, balance and fatigue 	<ul style="list-style-type: none"> • Adaptive classroom equipment (e.g. prone and supine standers, sideliars, adapted chairs with seating modifications and support, etc.) • Adapted tables and desks • Daffos, AFOs, Braces, splints and belts • Walkers • Crutches/canes • Manual wheelchairs • Power wheelchairs • Laptrays and equipment mounts

If assistive technology is included in the IEP, consider providing these assistive technology services:

- Training on technical assistance for individuals
- Training on technical assistance for families
- Training on technical assistance for professionals/paraprofessionals

If assistive technology is NOT included in the IEP, indicate how student needs are addressed through:

- Instructional and/or therapeutic intervention to remediate skill deficits
- Instructional and/or therapeutic intervention to develop compensatory skills
- Adaptions of tasks and/or task expectations
- Use of human assistance (paraprofessional, peer assistance, etc.)

(2004 Lincoln County School District #2 Assistive Technology Team)

Sources: Georgia Project for Assistive Technology, Assistive Technology Consideration Resources Guide; MainCITE Project, Maine Department of Education, Office of Special Services; Assistive Technology: A Special Education Guide to Assistive Technology, Montana Office of Public Instruction, Division of Special Education; Nebraska Resource Guide: Health and Human Services.



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Assistive Technology (AT) Consideration Process

Assistive Technology Consideration Guide: Form C

Student Name: _____

School: _____

1. What task is it that we want this student to do, that he or she is unable to do at a level that reflects his/her skills/abilities (writing, reading, communicating, seeing, hearing)? Document by checking each relevant task below. Please leave blank any tasks that are not relevant to the student's IEP.
2. Is the student currently able to complete tasks with special strategies or accommodations? If yes, describe in Column A for each checked task.
3. Is there available assistive technology (either devices, tools, hardware, or software) that could be used to address this task? (If none are known, review AT Checklist.) If any assistive technology tools are currently being used (or were tried in the past), describe in Column B.
4. Would the use of assistive technology help the student perform this skill more easily or efficiently, in the least restrictive environment, or perform successfully with less personal assistance? If yes, complete Column C.

Task	A. If currently completes task with special strategies/accommodations, describe.	B. If currently completes task with assistive technology, describe.	C. Describe new or traditional assistive technology to be tried.
<input type="checkbox"/> Motor Aspects of Writing			
<input type="checkbox"/> Computer Access			
<input type="checkbox"/> Composing Written Material			
<input type="checkbox"/> Communication			
<input type="checkbox"/> Reading			
<input type="checkbox"/> Learning/Studying			
<input type="checkbox"/> Math			
<input type="checkbox"/> Recreation and Leisure			
<input type="checkbox"/> Activities of Daily Living (ADLs)			

Task	A. If currently completes task with special strategies/accommodations, describe.	B. If currently completes task with assistive technology, describe.	C. Describe new or traditional assistive technology to be tried.
<input type="checkbox"/> Mobility			
<input type="checkbox"/> Environmental Controls			
<input type="checkbox"/> Positioning and Seating			
<input type="checkbox"/> Vision			
<input type="checkbox"/> Hearing			

5. Are there assistive technology services (more specific evaluation of need for assistive technology, adapting or modifying the assistive technology, technical assistance on its operation or use, or training of student, staff, or family) that this student needs? If yes, describe what will be provided, the initiation and duration.

Persons Present: _____

Date: _____



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Assistive Technology (AT) Consideration Process

Assistive Technology Checklist: Form D

SEATING, POSITIONING, AND MOBILITY

Seating and Positioning

- Standard seat/workstation at correct height and depth
- Modifications to standard seat or desk
- Alternative chairs
- Adapted/alternate chair, sidelyer, stander
- Custom fitted wheelchair or insert

Mobility

- Walking devices - crutches/walker
- Grab bars and rails
- Manual wheelchair
- Powered scooter, toy cart or cart
- Powered wheelchair w/joystick or other control
- Adapted vehicle for driving

COMMUNICATION

- Concrete Representation
- Simple speech generating device
- Speech generating device with levels
- Speech generating device with icon sequencing
- Speech generating device with dynamic, display
- Text based device with speech synthesis

COMPUTER ACCESS

- Positioning of student
- Standard keyboard/mouse with accessibility/access features built into the operating system
- Standard keyboard/mouse with adaptations
- Rate enhancement
- Alternate keyboard/mouse

- Voice recognition software
- Onscreen keyboard
- Eye Gaze
- Morse Code
- Switch Access
- Other: _____

COMPOSITION OF WRITTEN MATERIAL

- Picture supports to write from/about
- Pictures with words
- Words cards/word banks/word wall
- Pocket dictionary/thesaurus
- Written templates and guides
- Portable, talking spellcheckers/dictionary/thesaurus
- Word processing software
- Word prediction software
- Digital templates
- Abbreviation expansion
- Word processing with digital supports
- Talking word processing
- Multimedia software with alternative expression of ideas
- Tools for citations and formats
- Voice recognition software

READING

- Standard text
- Book adapted for access
- Low-tech modifications to text
- Handheld device to read individual Words
- Use of pictures/symbols with text
- Electronic text

- Scanner with OCR and text reader
- Modified electronic text
- Text reader
- Text reader with study skill support

MATHEMATICS

- Math manipulatives
- Low-tech physical access
- Abacus/mathline
- Adapted math paper
- Adapted math tools
- Math "smart chart" math scripts
- Math tool bars
- On-screen calculator
- Alternative keyboards/portable math processors
- Virtual manipulatives
- Math software and web simulations
- Voice recognition math software

MOTOR ASPECTS OF WRITING

- Environmental and seating adaptations
- Variety of pens/pencils
- Adapted pen/pencil
- Writing templates
- Prewritten words/phrases
- Label maker
- Portable word processor
- Computer with accessibility features
- Computer with word processing software
- Alternative keyboards
- Computer with scanner
- Computer with word prediction
- Computer with voice recognition software

RECREATION AND LEISURE

- Typical toys/puzzles/balls/utensils/instruments adapted; adjustable equipment; flexible rules; add visual/auditory clarity
- Specially designed utensils/equipment
- Electronically/mechanically adapted utensils and equipment
- Electronic aids -remote controls, timers, CD players, speech generating devices
- Computer-facilitated and computer-based activities
- Online and virtual recreational experiences

VISION

Computer access

- Color scheme
- Large operating system features
- Built-in magnification
- Fully-featured magnification
- Magnification with screen reader
- Screen reader
- Screen reader with Braille device

Reading

- Glasses
- Color Filter
- Slantboard
- Large print
- Optical Magnifier
- Electronic Magnifier
- CCTV
- Monocular
- CCTV with distance camera
- Audio text
- Computer-based reading software
- Electronic Braille notetaker

Writing

- High contrast pen
- Portable word processing device
- Typing with audio support
- Braillewriter
- Typing with Braille support
- Electronic Braille note taker
- Voice recognition

Mathematics

- Large print measuring tools
- Large key calculator
- Tactile measuring devices
- Abacus
- Talking calculator
- Models or 2D and 3D geometric shapes
- Tiger embossed, PIAF Tactile representation

Pictorial Information

- Enlarged format
- OCCTV
- Models or objects
- Tactile graphics
- Tactile-audio graphics

Mobility

- Cane
- Monocular
- Braille/talking compass
- Electronic travel device
- GPS device

Note taking

- Slate and stylus
- Tape or digital recording device

ORGANIZATION**Self-Management**

- Sensory regulation tools
- Movement and deep pressure tools 0 Fidgets
- Auditory
- Visuals

Information Management

- Tabs
- Sticky notes, index cards
- Highlighters
- Key words
- Study guide
- Task analysis
- Digital highlighters and sticky notes
- Handheld scanners/electronic extraction
- Electronic organization
- Study grid generators/grading rubric
- Online search tools
- Online web trackers
- Online sorting file tools
- Digital graphic organizers
- Online manipulatives, interactive, tutorials, animations

Time Management

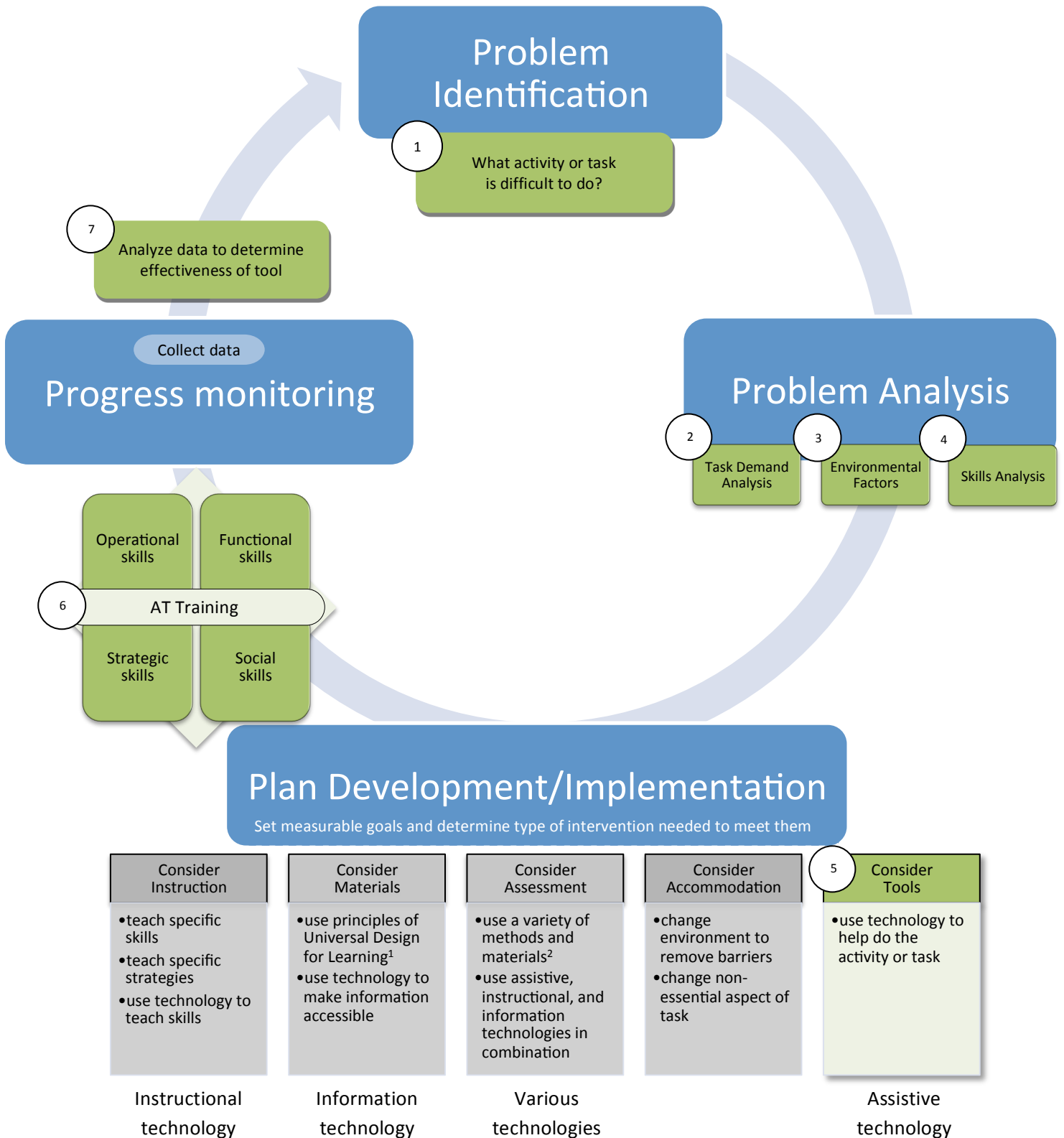
- Checklists
- Paper planners/calendars
- Schedules (visual)
- Portable, adapted timekeepers
- Electronic reminders
- Digital planners (PDA) cell phones
- Web-based planning tools

Material Management

- Low-tech organizers
- Checklists
- Container system
- Coding system
- Electronic filing and storage
- Portable electronic storage
- Computer-based tools

Integrating Assistive Technology into the Problem-Solving Process

A Framework for Schools

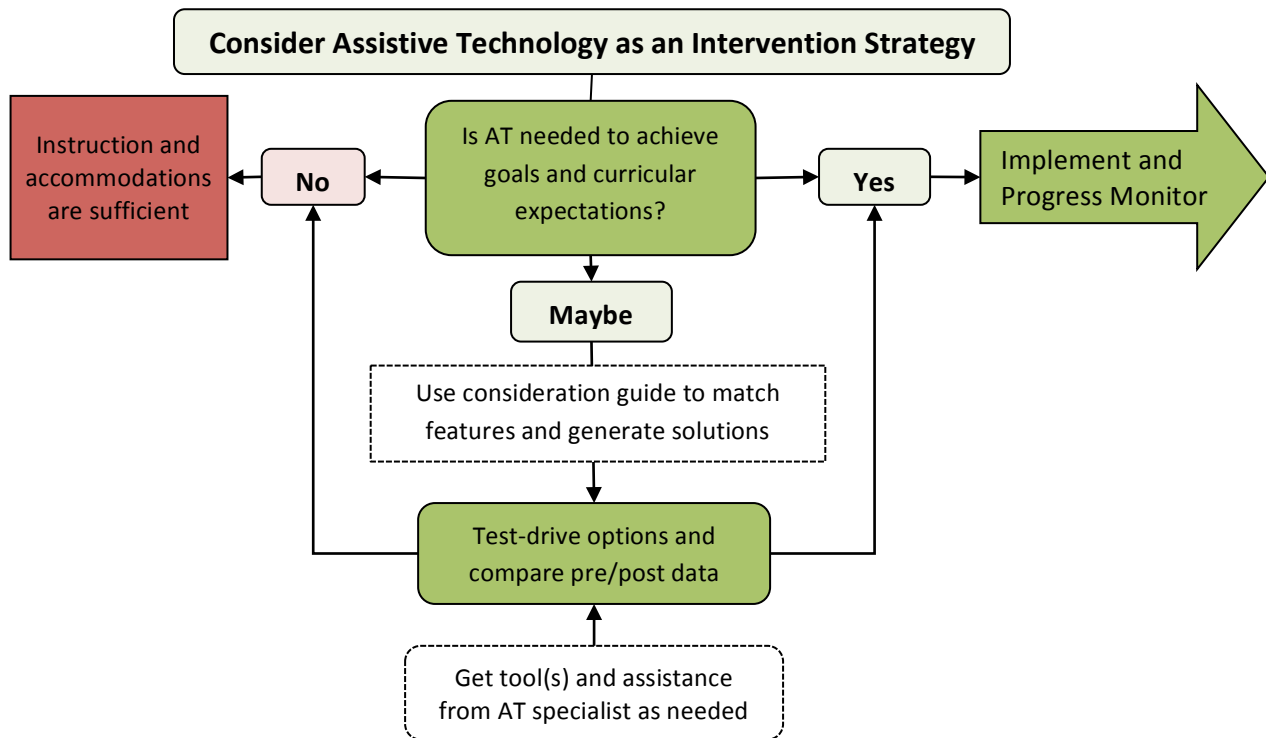


Integrating Assistive Technology into the Problem-Solving Process

A Framework for Schools

Problem Analysis and Plan Development based on Ira Socol's Toolbelt Theory³

1. **Identify Activity/Task:** What activity or task is difficult to achieve at expected level?
2. **Task-demand analysis⁴:**
 - a. What skills are needed to accomplish the task? (e.g. physical, cognitive, linguistic)
 - b. What are the critical vs. non-critical elements of the task?
 - c. What are the outcome expectations (e.g. curriculum standards)
 - d. What are the time constraints?
3. **Environmental factors:**
 - a. Where does activity or task need to be done?
 - b. What barriers are present in the environment?
 1. Inaccessible design of environment or instructional materials
 2. Policy, practice, or attitude barriers⁵
 3. Lack of knowledge and skill by teachers and staff⁶
4. **Student's Skills Analysis:** (*involve student in self-evaluation as much as possible*)
 - a. What is my (*student's*) present level of performance on this task?
 - b. What accommodations and/or tools do I (*student*) currently use to achieve this performance?
 - c. What specific weaknesses interfere with my (*student's*) ability to complete the task?
 - d. Am I (*is student*) interested in exploring technology tools to help do the task?
5. **Consider AT:** Can tools help "bridge the gap" between current skill set and achievement of task?



- a. **No:** Instruction and accommodations are sufficient for student to meet expectations.
- b. **Yes:** Data shows that specific tool(s) help the student meet expectations. Continue using them.

Integrating Assistive Technology into the Problem-Solving Process

A Framework for Schools

- c. **Maybe:** More information is needed to answer the consideration question. Use a consideration guide or other resources to match tool features and generate potential solutions.
- d. **Test-drive tool options:** Use brief trial sessions to determine potential effectiveness of AT options. Compare functional performance without the tool (pre-test) to functional performance with the tool (post-test) to determine effect of tool use on specific task outcomes.

Implementation and Progress Monitoring

6. **Implement AT Intervention:** Assess long-term effectiveness of tool in student's customary environment
 - a. Give student access to tool(s) found effective during test-drive
 - b. Provide training to increase a cluster of skills that contribute to successful use of AT tools.⁷ IDEA 2004 requires training for student, staff, and, if appropriate, the student's family.⁸
 - *Operational skills:* How the tool works (*e.g. how to turn it on*)
 - *Functional skills:* How to do the task with the tool (*e.g. how to write with it*)
 - *Strategic skills:* Which tool is appropriate for which task (*build tool belt*)
 - *Social skills:* How to navigate the social impact of using the tool (*e.g. curious peers*)
 - c. Create implementation plan to minimize opportunity barriers.
7. **Determine Effectiveness:** Frequent progress monitoring should be used to determine the effectiveness of any intervention. Data should be analyzed after a reasonable period of time (length depends on task).
 - a. If assistive technology tools do help the student achieve goals and curricular expectations, clearly document them as an integral part of student's educational plan (IEP, 504, etc.).
 - b. If assistive technology tools are not helping the student achieve goals and curricular expectations:
 - Has the student been given adequate opportunity and support to implement the tool(s)?
 - Does the student, staff, or parent need more training?
 - Are technical or practical problems creating an implementation barrier?
 - Would a different tool or type of intervention be more effective?
 - c. If activity/task, environment or student's skill set changes over time, the tool(s) may also need to change. Repeat cycle.

Types of Technology Used in Educational Settings⁹

The following categories may be useful in sorting out assistive technology from other types of technology used in the educational setting. A single student might use different types of technology in combination to accomplish a task. A single device can have features from more than one category (e.g. instructional and assistive features).

1. *Instructional technology:* Tools to facilitate teaching and increase learning
2. *Information technology:* Tools to access information and facilitate communication
3. *Assistive technology:* "Any item, piece of equipment, or system, whether acquired commercially, modified, or customized, that is commonly used to increase, maintain, or improve functional capabilities of individuals with disabilities."¹⁰
4. *Productivity technology:* Tools to help produce and create, such as word processors, spreadsheets, presentation tools, and video editing software

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5. Medical technology: Tools to sustain life and health

References

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¹ CAST. (2011). *Universal Design for Learning Guidelines*. Retrieved from http://www.udlcenter.org/sites/udlcenter.org/files/updateguidelines2_0.pdf

² CAST. (2013). *What is meant by the term curriculum?* [Web page]. Retrieved from <http://www.udlcenter.org/aboutudl/udlcurriculum>

³ Ira Socol. (2008, March 15). *CSUN2008/A Toolbelt for a Lifetime*. [Web log post]. Retrieved from <http://speedchange.blogspot.com/2008/03/csun-2008a-toolbelt-for-lifetime.html>. "Toolbelt Theory is based in the concept that students must learn to assemble their own readily available collection of life solutions. They must learn to choose and use these solutions appropriately, based in the task to be performed, the environment in which they find themselves, their skills and capabilities at that time, and the ever-changing universe of high and low-tech solutions and supports. After all, few of us have a toolbox with just one screwdriver, or just the tools we were given when we were ten-years-old."

⁴ Wojcik, Brian W. & Douglas, Karen H. (2012) *Illinois Assistive Technology Guidance Manual*. [Monograph]. Retrieved from <http://www.isbe.state.il.us/spec-ed/pdfs/assist-tech-guidance-manual.pdf>

⁵ Beukelman, D., & Mirenda, P. (2006). *Augmentative & Alternative Communication: Supporting Children & Adults With Complex Communication Needs*. Baltimore: Paul H Brookes Pub Co.

⁶ *ibid*

⁷ Binger, C., C., J., & Light, P. (1998). *Building Communicative Competence With Individuals Who Use Augmentative and Alternative Communication*. Baltimore: Brookes Publishing Company. Adapted by The Advisory Committee of the Oregon Technology Access Program. (2003, June). *Assistive technology model operating guidelines for school districts and IEP teams* (G. Bowser, Ed.). Retrieved from Oregon Technology Access Program Web site: <http://www.otaporegon.org/pages/otappublications.aspx>. Terminology modified by Daniel Cochrane.

⁸ 34 CFR 300.5. Authority: 20 U.S.C. § 1401(1). Individuals with Disabilities Education Improvement Act of 2004.

⁹ Blackhurst, A. Edward. (2001). *Types of Technology*. [Web page]. Retrieved from <http://tam.uky.edu/basics/techtypes.html>

¹⁰ 34 CFR 300.5. Authority: 20 U.S.C. § 1401(1). Individuals with Disabilities Education Improvement Act of 2004. The only exclusion is "a medical device that is surgically implanted, or the replacement of such device."

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