

Chapter 10 – Assistive Technology for Recreation and Leisure

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Assistive Technology for Recreation and Leisure

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Introduction

If, as Aristotle said, “The quality of life is determined by its activities,” then finding meaningful avenues for recreation and leisure is a key part of working toward the best life outcomes for students with disabilities. Because school has traditionally been focused on academic learning, this vital aspect of preparing students for fulfilling adult lives is sometimes pushed aside in favor of meeting academic standards. However, almost every measure of quality of life begins with health and social connectedness. Dr. James A. Rimmer of the Department of Disability and Human Development at the University of Illinois, Chicago says, “Participation in play, recreation and sport has a profound impact on overall growth and development and are essential elements for a satisfying childhood and adolescence.” (2008) He also points to improved life outcomes and better health for everyone who participates in active recreation, but particularly for those individuals whose health may already be compromised by disability (Rimmer, 2005). Unfortunately, children with disabilities are almost twice as likely to be sedentary than their peers without disabilities (US Department of Health and Human Services, 2000). Not surprisingly, a 2004 National Organization on Disability survey found that people with disabilities were 27% less satisfied with life than those without disabilities.

While the scope of recreation and leisure activities certainly goes beyond the school setting, opportunities to learn and benefit from play, sports and the arts abound in our schools. Specific classes in visual and performing arts, and physical education are obvious. Less obvious, but no less valuable, are the skills developed on the playground, or the interests engaged during field trips to museums, on nature hikes, and in gardening projects. Extra-curricular activities like sports teams, theater, band, dance, gaming clubs, FFA, and many more can provide important health benefits, social relationships, and boosts to self-esteem for students with disabilities.

The goal of this chapter is to provide a framework for identifying assistive technology needs and a range of low- to high-tech solutions for students participating in recreation and leisure activities. By eliminating the barriers to involvement (physical, social, cognitive) in these activities, schools encourage all students to find and enjoy the improved physical and mental health that come with community engagement, creativity and exercise. Of course, fun and engaging activities provide wonderful, pain-free opportunities to teach and learn, too!

With a virtually limitless array of recreational options, one chapter cannot provide specific information for every option. Online resources and contacts for specific activities are listed at the end of the chapter and will provide avenues for further research. Please consult with an Occupational and/or Physical Therapist for student-specific suggestions and safety considerations, especially for physical accommodations. OTs and PTs and Recreational Therapists are trained to provide this kind of information on an individual basis. Some of the adaptive equipment described should be used under a therapist’s supervision or direction. In

addition, many of the issues regarding access to appropriate recreational and leisure choices are addressed in the ASNAT chapters on Mobility, Computer Access, Communication and Activities of Daily Living.

Using the SETT process and Decision Making Guide

It is intended that you use this as a guide. The Decision Making Guide follows the SETT (Student, Environment, Task, and Tool) format with a subcategory of Sensory Considerations included with Student and Environment. Additional categories include:

- Narrowing the Focus to help identify a specific task in order to select appropriate assistive technologies.
- Implementation Plan to assign trials, dates, responsibilities and data collection.
- Follow-Up Plan to set a date for the team to reconvene and review the student's progress.

Again, this is intended as a guide; during the actual assessment process, each topic should be written in large print where everyone can see (i.e., on a flip chart or board). Information should then be transferred to paper for distribution, filing, and future reference. For more information about using the SETT process, please refer to Chapter 1 of this manual.

The questions posed in the guide are not intended to be all inclusive but rather to prompt the team to consider as many factors as possible in order to identify and ultimately try appropriate assistive technology tools and strategies for their students.

WATI Assistive Technology Decision Making Guide

Area of Concern: Recreation and Leisure

PROBLEM IDENTIFICATION

Student's Abilities/Difficulties	Environmental Considerations	Tasks
What are the student's abilities & difficulties related to the area of concern? - Interests, skills, familiarity, social motivation, knowledge of rules and protocols - Health and safety concerns - Physical limitations - Ability to comprehend expectations	What environmental considerations impact the area of concern? - Access to necessary adaptive equipment - Availability of knowledgeable staff (coach, teacher, para) - Family and community support - Transition from one location to another	What task(s) do you want the student to do? (for example) - Activate a musical keyboard - Act in a play - Create a picture - Swim w/o 1:1 support - Shoot a basket - Use playground equipment at recess - Play a game of cards - Hike on a nature trail - Make a snowman - Play team Wii bowling
Sensory Considerations		Narrowing the Focus
What sensory challenges does the student have that impacts this area of concern? (i.e., visual, auditory, tactile) With such a wide variety of settings for leisure activities (from school gymnasium to snowy hill to quiet reading room) the importance of considering the extremely different (light, sound, temperature) and sometimes surprising (bees, cymbals, fast-moving projectiles) sensory input and the child's ability to process that input in the each setting cannot be overstated.		Identify specific task(s) for solution generation After the team has generated a list of tasks that the student wants to do, you may choose to refine the list to limit the tasks that the team will focus on. The tasks that remain can become your new focus at a later date.
Solution Generation Tools & Strategies	Solution Selection Tools & Strategies	Implementation Plan
Brainstorming Only No Decisions yet Review the area continuum	Use a feature Match Process to discuss and select ideas(s) from Solution Generation	AT Trials/Services Needed: - Date - Length - Person Responsible - Formulate objectives/criteria to determine success of trial/AT
		Follow-Up Plan
		Who & When Set specific date now.

Important: It is intended that you use this as a guide. Each topic should be written in large print where everyone can see them, i.e. on a flip chart or board. Information should then be transferred to paper for distribution, file, and future reference.

Student's Abilities and Difficulties

As a team, discuss what the student's abilities and difficulties are related to recreation and leisure. Please complete and review Section 9 of the WATI Student Information Guide: Recreation/Leisure (Chapter 1 page 39)

Cognitive/Social/Emotional Considerations

In the area of recreation and leisure, a student's interests and personal preferences are particularly important to consider. Recreational choices are just that: choices. The goal is for the student to develop interests and behavior patterns that will be intrinsically motivating and, therefore, likely to continue throughout adulthood. In school settings, a specific curriculum may set limits on students' freedom of choice, but remember that people engage in recreation and leisure activities because doing them feels good in some way.

- How will the "task" at hand make the student feel good: better health, improved self-esteem, social connections, a quality product or performance?
- Is this endeavor meaningful to the student?
- Can it be connected to past experiences, immediate goals or plans for the future?

The student's ability to understand how and why to participate in a "fun" activity is also important to consider.

- Does the student understand the rules and expectations of the situation?
- Is the student familiar with the activity? Do friends or family participate?
- How does the student learn, understand directions and make choices best?
- How will the student communicate in this situation? If augmentative communication is used, can it be accessible (in the pool, on stage, during a hike)?

Physical Considerations

Physical considerations are very student and situation specific. Look first at what the student is able to do. Note physical challenges that may make the student's ability to participate different than their typical peers'. Then, consider the task and what assistive technology will provide the best access for successful participation. Again, be sure to consult a physical or occupational therapist for guidance in making significant physical accommodations (adapted skis, horseback riding equipment).

- Can the student participate in the activity safely (with appropriate accommodations)? Be sure no medical conditions contraindicate participation (allergies, spinal cord conditions, seizure disorders etc.).
- Is the student independently mobile? What equipment, if any, is needed to provide safe mobility?
- What position (of the student or of the items related to the task at hand) is the best to allow for active engagement in the process?

- Can the student grasp/hold on to necessary tools (a paintbrush, cards, toys, a fishing pole, a ball, a musical instrument)?
- Does the student have impaired vision or hearing?
- Do fine or gross motor skill deficits interfere with the student's participation in other activities, and is that interference likely in this task?

Environmental Considerations

As a team, discuss and write on chart paper any environmental considerations that might impact the student's participation in the activity such as auditory or visual distractions, temperature and weather variables for outside locations, placement in the classroom, number of and transitions between different environments or any other environmental impacts.

Again, recreational environments vary so widely that making generalizations is difficult. Some points to consider in most situations include:

- Availability of adaptive equipment (from adaptive grips to protective gear for sports to computer software).
- Group size.
- Outdoor terrain and/or physical layout of the classroom (look at accessibility and potential risks).
- Knowledge level and availability of adult support.

Assistive Technology: past and present

What assistive technology (AT) has been employed in the past or is currently used with the student? List all assistive technologies that have been used with the student. If some have been discontinued, make note of the reasons. Sometimes effective tools are discontinued for reasons that no longer exist such as computer conflicts, lack of training, lack of interest, or other reasons. Do not always discount assistive technology that was previously tried and discarded. There may have been a mismatch between the assistive technology and the student's skills at the time. Changes in skill development, maturity, a different environment or other factors may make all the difference. If the student is currently using assistive technology note the AT used, location, level of effectiveness, trained staff, and any other issues that are pertinent to the student/building. Be certain to list low and high tech AT supports.

Sensory Considerations

Some students are adversely affected by environmental stimulation that others can filter out or ignore. Some common factors that can impact a student's learning and focus include hypersensitivity or hyposensitivity to stimuli such as:

- Visual clutter
- Fluorescent lighting versus full spectrum lighting
- Classroom and background noise
- Tactile stimulation

- Awareness of physical space
- Other individual specific sensitivities

Recreation and Leisure activities are rife with sensory stimulation. Unusual textures in art class, bright lights on stage, cacophony in the band room, strange smells in a barn, balance challenges on the playground, temperature extremes outside and many more sensory processing issues are likely to arise. Be sure to understand the child's sensory profile and to consider sensory input in each environment.

Tasks

As a team, discuss and write on chart paper the recreational activities and relevant tasks that the student needs to do.

One of the most important questions when assessing a student's need for assistive technology is: what are the tasks the student needs or wants to do? In this instance what does the student need to do to participate as fully as possible? Thinking broadly and then more specifically about "tasks" may be helpful. For example:

- 1) Arts and Crafts: Activity: make a collage. To better understand what assistive technology is required for this task, consider each step and the student's ability to perform it. Tasks:
 - a. Sit at art table
 - b. Manipulate paper
 - c. Cut pictures out of magazines
 - d. Paste pictures on paper
 - e. Put project on drying rack

For a child with multiple impairments, each step may require different assistive technology for seating and positioning, grasping, cutting, pasting and moving through the classroom.

- 2) Games and Play: Activity: play "Go Fish!" Tasks:
 - a. Sit at game table
 - b. Deal cards
 - c. Hold cards
 - d. Look at cards
 - e. Communicate "Go Fish"
 - f. Pick up cards

Does it make more sense for this student to learn to play a computer version of "Go Fish" that will facilitate the play with a switch?

- 3) Sports and Exercise: Activity: play basketball. Tasks:
 - a. Get on court
 - b. Communicate with other players

- c. Hold ball
- d. Dribble ball
- e. “Shoot” basket
- f. Block other players
- g. Move up and down court

Can the game be adapted so that dribbling is not required and only half the court is used?

- 4) Performing Arts: Activity: play percussion in marching band. Tasks:
- a. Hold instrument
 - b. “Hit” or play instrument
 - c. Move in time
 - d. Play in time

Should the student master a simpler task such as playing in the concert band first?

Narrowing the Focus

As a team, identify by circling or other means those few tasks the student needs to do to participate in an activity that will have the most impact.

After the team has generated a list of tasks that the student needs to do, you may want to refine the list to limit the tasks that the team (including the student) will focus on. Too many tasks can overwhelm the team. Introduction of too many factors and tools may reduce your ability to determine effectiveness. Maintain your original list of tasks and review it later. Some tasks may already be effectively addressed with the new tools/strategies that you are using. The tasks that remain can become your new focus at a later date.

Solution Generation: Tools/Strategies

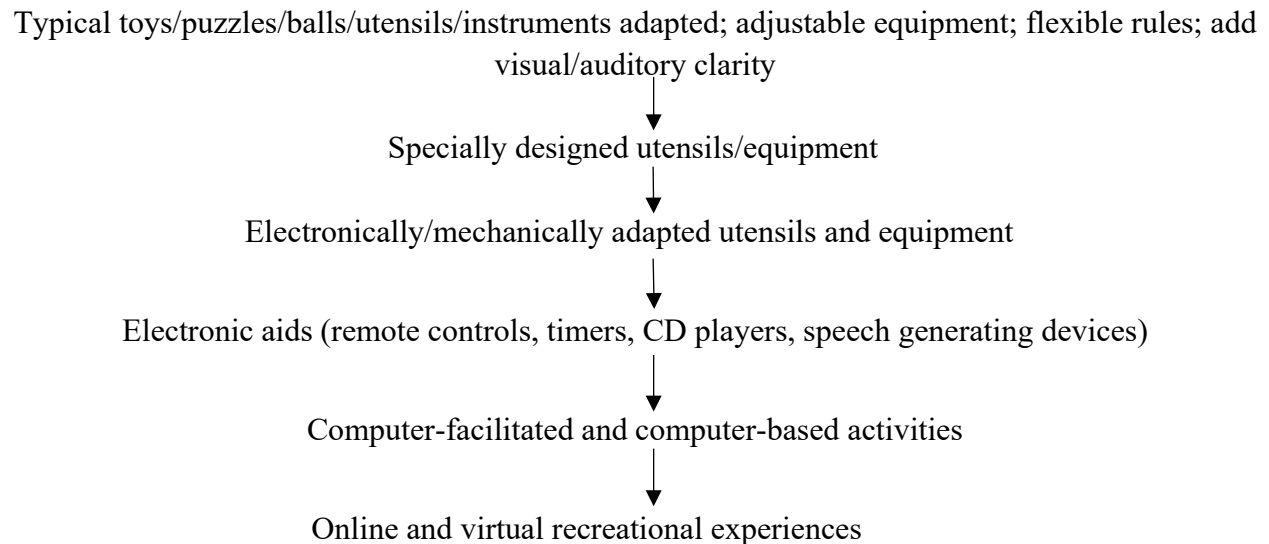
As a team, brainstorm and write on chart paper any assistive technologies and/or strategies you think will assist the student in successfully completing those tasks you identified.

The team brainstorms strategies and assistive technology tools that may be of benefit for the student to complete the identified tasks in the given environments. Do not critique or otherwise evaluate the suggestions at this time. List all suggested tools and strategies including those currently in use on chart paper for all to see. The continuum is generally organized from low to high Assistive Technology. It is not intended to be used as a step-by-step protocol for using AT tools with a student, but rather an organizational continuum of types of assistive technology.

The following continuum and descriptions of solution considerations simply provide examples of the kinds of technology that might be considered for various recreational opportunities. They are by no means exhaustive. The chart that follows provides more detailed information for specific

activities and products. Resources and web links at the end of the chapter suggest places to get more information on a wider range of interests.

A CONTINUUM OF CONSIDERATIONS FOR ASSISTIVE TECHNOLOGY Recreation and Leisure



Typical activities, utensils and equipment adapted for greater accessibility

Often times, recreational activities can be adapted to accommodate various needs by simply adding cues or creating modifications with items that are readily available in most environments. For example:

In Arts and Crafts...

- Add something sticky or increase the handle diameter with foam to make utensils easier to hold.
- Use clay or moldable foam to shape into the form of the student's hand to use as a grip.
- Adjust the workspace for easier access.
- Use a Lazy Susan to hold art supplies.
- Try a tabletop easel.
- Use no-skid/non-slippery surface.
- Use portion controlling caps, glue sticks or rolling glue bottles.
- Add color to the glue to make it easier to see.
- Use stamps or cookie cutters or sponges instead of brushes and pencils.
- Simplify projects.

In Games and Play...

- Use larger cards and game pieces.
- Outline significant areas in puffy paint.
- Put dice in a bottle, use bigger dice and/or use numbers instead of dots.
- Add magnetic tape to keep pieces (of games or puzzles) or cards in place.
- Add handles to toys that are difficult to grasp.
- Simplify directions; use visual cues.

In Sports and Exercise...

- Use adjustable height basketball hoops.
- Clarify boundaries with colored tape/chalk lines.
- Try balls of different weights and sizes and firmness.
- Add padding to hard objects and other things that might hurt to bump.
- Use fishing rod holders.
- Try sticky mitts, bigger bats, or lighter balls.
- Use flotation devices.
- Add flexible time limits.

In Performing Arts...

- Use visual cues or prompting.
- Add handles, foam or tacky tape/putty to help hold instruments.
- Add pictures and colors to sheet music.
- Choose pieces that are short and clear.
- Use scarves, body socks, wall mirrors for dance.

Specially designed utensils/equipment

Many standard equipment companies offer adapted equipment and utensils as well. In addition, many companies specialize in providing adaptive products for people with disabilities.

In Arts and Crafts try...

- Adapted scissors and other utensils.
- Universal Cuff to hold tools/items.
- Arm supports to guard against fatigue and to provide stability.

In Games and Play try...

- Adapted spinners.
- Braille or other adapted games.
- Card holders.
- Puzzles with large pieces and/or handles.

In Sports and Exercise, explore the possibility of (and don't forget helmets and other safety equipment)...

- Transfer belts to help move or support a student in action.
- Fully adapted and accessible playground equipment.

- Specially designed adaptive equipment for golfing, baseball, basketball, hockey, fishing, kayaking...virtually any sport has adapted equipment available.
- Mounting blocks, ramps, saddles with handles and trunk support, and ladder reins for horseback riding.
- Bowling ramps, bumpers, holder rings, ball pushers for bowling.
- Sport or all-terrain wheel chairs.

In Performing Arts, try...

- Plays written for and/or by people with disabilities.
- Specially designed musical instruments.

Electronically or mechanically adapted equipment/utensils and electronic devices

At higher levels of technology the somewhat arbitrary division of recreation and leisure becomes less necessary as many activities share the same tools such as switch-operated devices and toys, amplification, and light.

For Arts and Crafts:

- Switch operated devices such as paint spinners, pottery wheels.
- Focused/colored lighting.
- Motorized easel.

For Games and Play:

- Switch adapted card shuffler.
- Electronic or mechanized games and toys (possibly switch activated).

For Sports and Exercise:

- Beeping or lighted balls.
- Buzz-off bobber, electronic fishing wheels.
- Pool lift.
- Motorized wheel chair.

For Performance Arts

- Personal PA system.
- Voice output devices.
- Remote controls or switches for CD players, electronic instruments.
- Video cameras.

Computer-facilitated or computer-based activities

The computer is such a versatile tool that its benefits can apply across the spectrum of recreation and leisure activities. A wide variety of software is available that can teach skills, provide real games (cards, board games, sports) to play alone or with partners or groups. Computer and video games are popular and age-appropriate recreational choices that are often easily accessible to students with disabilities. Some game systems are sensitive to movement and can provide motivating and meaningful physical exercise. Touchscreens and interactive whiteboards offer different access and more physical involvement in computing.

Online and virtual recreational experiences

Online communities can provide invaluable social connectedness and leisure pursuits. Students can chat, share interests and play games with their peers on the web. Virtual worlds allow people to experience activities and to assume other characters in a way not tied to their own limitations. It can provide good practice and valuable freedom.

Solution Selection: Tools & Strategies

Use a Feature Match process to discuss and select those ideas, tools, and strategies that were generated during the solution brainstorming. Select those that best match the student, the environment and the leisure “tasks” that the student is most interested in performing. Limit your selections to a reasonable number and prioritize them according to those that can be accomplished immediately, in a reasonable time period and those that will be considered at a later time. Input from the student, family members and those who understand the student’s social network will provide valuable guidance in choosing the most successful path.

Implementation Plan

After tools have been selected and prioritized, identify any trials or services that are needed including procurement of trial materials, team member(s) responsibilities, start date and length of trial, training needed and any other student/staff specific issues. Be certain to identify recreation and leisure objectives and criteria of performance to determine the effectiveness of the trials. While quantifying “fun” or “enjoyment” is difficult, the willingness or eagerness of the student to participate, in addition to levels of independence and actual performance *can* be measured.

Be sure to include Occupational and/or Physical therapists in discussing and implementing the plan.

Internet Resources/Links

Disability Resource Directory
Sports, Recreation and Leisure page
Shared lessons and activity planners (based in Oregon)
<http://www.kansas.net/~cbaslock/sports.html>

Inclusion Toolkit
Offers links to resources with a focus on inclusive recreation
<http://www.inclusiontoolkit.com/Recreation.php>

National Center on Accessibility
<http://www.ncaonline.org>

Therapeutic Recreation Directory
This is a comprehensive site with links to articles, resources, and lesson plans
<http://www.recreationtherapy.com>

Focus on Arts and Crafts

Free computer drawing program
<http://www.draw4free.com>

Scratch-free
Animation and art program
<http://www.scratch.mit.edu>

Tuxpaint-free
Free, intuitive art program
<http://www.tuxpaint.org>

Vendors

Alternative cutting
www.kitchenkapers.com/i-slice-ceramic-slicer.html

Non-slipping mat
<http://www.Abledata.com>

Discount School Supply
Extensive arts and crafts selection
www.discountschoolsupply.com

Nasco Arts and Crafts
Art supplies & adaptive materials
<http://www.eNasco.com>

Sax Arts and Crafts
Art Supplies and adaptive equipment
<http://www.saxarts.com>

Tabletop Magnetic Markerboard
<http://www.abcstuff.com>

Ergo Rest®
Arm support
<http://www.infogrip.com>

Rotating supported drawing surface
<http://www.dickblick.com>

Clicker “Paint”
Single switch or traditional computer access
<http://www.cricksoft.com>

CoreFX
Leveled art program with realistic media effects
<http://www.core-learning.com>

KidPix 4 Deluxe
Traditional art program with stamps, easy to use
<http://www.learningcompany.com>

Focus on Games and Play

Able Play
Offers evaluations and guidelines for toys for children with disabilities
<http://www.ableplay.org>

Lekotek Resources
Provides “how to” recipes and guidelines for activities and creating adapted toys
<http://lekotek.org/resources/informationontoys/packets.asp>

Print n’ Play Games
50 games to use for language development
<http://www.mayer-johnson.com.ProdDesc.aspx?SKU=M1E3B>

Lets Play

Information about playing with switches and Universal Design for Learning and PLAY

<http://letsplay.buffalo.edu>

Life Skills and Social Skills board games

<http://www.pcicatalog.com/Default.aspx>

Adapting Board Games

<http://www.ataccess.org/resources/wcp/enpdf/en03BoardGames.pdf>

Simple Access Game Spinner

<http://www.switchintime.com/FreeStuff.html>

Games for Young Children

<http://www.illinoisearlylearning.org/tipsheets/games.htm>

Puzzle Ideas

<http://www.ataccess.org/resources/wcp/enhtml/en16Puzzles.html>

Another great site for accessible games

<http://www.game-accessibility.com/index.php?pagefile=games>

Video of adapted gaming

<http://assistiveware.com/videos.php>

Vendors

Toys for young children

<http://enablingdevices.com/catalog/specially-adapted-toys>

Able Net

<http://www.ablenetinc.com>

Video gaming accessibility

<http://www.broadenedhorizons.com/videogaming.htm>

Adapted Pinball game

<http://www.northjersey.com/print>

Focus on Sports and Exercise

Adapting Games for Children and Adults who are Deaf-Blind

http://www.aph.org/pe/art_lieberman1.html

NARHA

Therapeutic Horseback Riding Association

<http://www.NARHA.org>

Fishing has No Boundaries

<http://www.fhnbinc.org>

US Adaptive Recreation Center

Focus on Olympic-type sports

<http://www.usarc.org>

Special Olympics Home Page

Offers information on Olympic style sports events for people with disabilities

<http://www.specialolympics.org>

National Center on Physical Activity and Disability

Has good links to information and organizations for “lifetime” sports

<http://www.ncpad.org/lifetime>

Disabled Sports USA

Provides a LONG list of web links to specific adaptive sports

<http://www.dsusa.org/links-drsr-links.html>

National Sports Center for the Disabled

Homepage <http://www.nscd.org>

(Check out adaptive equipment page, too)

Vendors

Abilitations

Adapted sports and sensory equipment

<http://www.abilitations.com>

Sportime

Sporting equipment

<http://www.sportime.com>

Sprint Aquatics

Adaptive swimming equipment

<http://www.sprintaquatics.com>

Flaghouse

Adaptive sports equipment and more including beeper ball, cuff and transfer belt

<http://www.flaghouse.com>

Focus on Performing Arts

National Arts Disability Center

This site has links to adaptive ideas and equipment

<http://nadc.ucla.edu>

American Alliance for Health, Physical Education, Recreation and Dance

<http://www.aahperd.org>

Vendors

Sibelius™

Software that supports music creation

<http://www.sibelius.com>

Switch In time™

Software to create music

<http://www.switchintime.com>

Dancing Dots

Software to create Braille sheet music

<http://www.dancingdots.com>