Supports Lists:
Tools and Strategies to Support Access to Standards-Based Learning for Diverse Learners

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Table of Contents

Compiled by:
Boston Public Schools Access Technology (ATC)
(formerly Special Education Technology Center)
Kristen Eichleay, Jack McCauley, and Lois Walsh, in collaboration with
Maureen P. Dacey, M.S. CCC-SLP, Easter Seals of Massachusetts

Contact information:
Kristen Eichleay, M. Ed., Director
Jack McCauley, Citywide Evaluation Team Facilitator, Unified Student Services
Susan DuBuske, OTR/L, Assistive Technology Assessor, ATC/Unified Student Services
Lois Walsh, B.A., Staff Assistant

Boston Public Schools
Access Technology Center; Office of Instructional Technology
55 Malcolm X Blvd.; Roxbury, MA 02120
Phone: (617) 635-8882, Ext. 411 Fax: (617) 635-8894 Email: atc@boston.k12.ma.us

If this list happens to come your way,
we hope you find it useful.
We welcome any feedback
you have to offer about its use, both
positive and negative, as well as
any suggestions of tools or strategies
which we might add to the lists.

Contact information is on the cover page.
Thank you!

Tools and Strategies for Classroom Management/Environment

preparation

- **brainstorm ideas** – in a variety of areas, vocabulary, background information, etc.
- **reduce or simplify steps** – limit the number of steps for students who cannot handle a lot of information at once; break down assignments into sections to make it less stressful
- **clear directions and expectations -** many students can't handle confusion
- **"you need" list** - post or make available a personal or class list of items needed to complete a task
- **template/model** – show the finished product to make expectations clear
- **student planner/notebook** – provide individual planners/schedules to stay organized, record homework etc.
- **schedule** – post, preview and review list tasks to be completed during work period or entire day
- **project calendars** – to keep everyone on track
- **high interest content** – use student's interests when creating examples for activities, e.g., sports, shoes, games
- **work space** – clearly define the student's work space, with no distractions with other materials
- **water** - provide a water bottle for each student to have at their desks to keep them hydrated
- **music** – use background music to stimulate, facilitate learning & promote relaxation; if student is bothered, seat away from source
- **quiet objects –** give student small object to hold and manipulate (e.g. Koosh ball) for active kids to fiddle with instead of making noise with pencils, etc.
- **physical activity** – provide frequent periods for exercise and breathing, even if only beside desks for short periods; for highly active students allow for movement activity (e.g. shoot nerf basketball through hoop), interspersed with seated assignments or after completing certain number
- **social stories** - can alleviate anxiety about activities/tasks; write/draw or create on computer a storybook describing the steps of any activity, academic or nonacademic, to allow the student to preview and be prepared for what is to come; a comic strip format can be very effective (see Contributors, Carol Gray)
- **Team communication –** consult involved specialists so that everyone is aware of the student's goals
  - **task definition strategies -** e.g., **KWL charts** – create a table; students list ""What I know, What I want to know, and What I learned"
- **limit assignments -** assign one assignment at a time to reduce confusion
- **repetition -** have students repeat lesson objective

presenting information/completing tasks:

- **use drama -** be dramatic, using large body movements and facial expressions, and move around frequently
- **multi-modal presentation** – offer information in variety of forms - visual, auditory, tactile, etc.
- **interactive lessons** – allow students to come up to the board, use body movements, etc.
- **sense of smell -** connect smells with new material – e.g., pop popcorn when presenting new information to enhance memory/learning
- **vary language -** address diverse learning needs by altering language of presentation/questioning as needed
- **card holders** - mount plastic or wood card holders on student's desk to display steps of activity; use words, pictures, photos, or symbols
  - **coding systems** - to support student completion of work, use colors, numbers, symbols or words for each step in a process
- **define terms** – for often used terms, post their definitions and be sure to use them consistently
- **link material –** explicitly show students how new and old material is linked; e.g., KWL ""What I know, What I want to know, and What I learned"

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- **repeat exposure -** some students require constant repetition, and benefit from multiple exposure to materials
- **plot progress** – use charts, graphs etc to monitor their own work or class products; can use text, graphics, Picture Communication Symbols, etc.
- **timer –** set a kitchen or visual timer to help student to pace themselves through multi-step task
- **post-its** – use sticky notes for sequencing events "first", "next", and "last"
- **"Did I...?" or "To do..." lists -** students check off as they complete tasks or check off what they must do before asking a question or receiving teacher feedback
- **color code -** use colors to identify topics, subjects, etc.
- **flashlight or light pointer** - to focus attention on target area of task
- **multiple input modes** – offer different options for student to obtain information e.g. text, drawing, spoken
- **B-E-M rule** - students remember best what is presented at the beginning and end of lessons; keep lessons short or segment into smaller units
- **alternative products –** allow student different options for products e.g., project or audio taped information instead of written report
- **limit choices -** many students are overwhelmed by too much stimulation/information or too many options
- **reference charts** – post content information/tables on walls and have smaller desktop versions
- **repetition –** repeat major points during lessons
- **simplify directions –** reduce the complexity of instructions to keep the focus on the content
- **role play** - for problem solving or acting out content material in story format
- **rubrics** – teacher or students create a matrix of performance standards; possibly add graphics; post on the wall; to make expectations clear for grading
- **repeat student's name –** say student's name often, especially when asking her/him to answer questions
    - **range of concepts** – present a range of concepts in one area, from simple to complex

<u>classroom environment</u>

- **praise -** find positive things to say about students outside of academic arena; welcome each student personally as they enter the room each day; sit in a chair if needed to be at their eye level; comment on their clothing, their bright smile, their kindness to someone else, etc. (William Glasser, **Schools Without Failure**)
- **sharing time -** include a time for students to share something nice about one another; write comments on the board/easel or discuss with other students why some students have different needs/sensitivities; to promote a compassionate attitude
- **eye contact –** maintain eye contact with students to keep attention, let them know they're noticed
- **exercise** – get up and stretch, walk around, and move hands/arms/shoulders periodically when working for long periods
- **nonverbal signals -** create a "high sign" for a student who needs special reinforcement to remind him/her about behavior issues; student may give a sign to indicate the need to take a break, etc.
- **mnemonic devices** – use for classroom rules, e.g., the 5 Ps or any easily remembered word/letter combination with the first letters standing for rules
- **model expected behaviors** – or have students model behaviors, e.g., how to ask good questions, then reinforce/praise
- **consistency -** maintain the same rules, expectations and routines as much as possible throughout the day
- **post lists** – create visuals of expected behavior, rules etc.; show alternative behavior options; tape small version of list to desk if needed
- **ear plugs, headphones, study carrels** – limits auditory and/or visual distractions
- **preferential seating –** near teacher; away from door/window, etc.

- **30 second check** – students sit straight up hands folded, eyes on speaker for 30 seconds**;** for older students, have a routine for attentive behavior, e.g., "Show me you're awake and ready to learn!" (meaning sitting up straight, leaning a bit forward, alert and ready to listen)
- **prepare for transitions -** provide verbal, visual and auditory cues**,** e.g., red flag means almost time for music
- **reinforce appropriate behaviors –** encourage good behavior as much as possible
- **behavior modification program -** however, if needed, reinforce with stars, stickers, teacher sign off for each completed task, etc.; may be used in combination with fostering self-management skills
- **break choices –** allow a specific number of breaks that the student can take as needed during the day
- **label** - using pictures, words, photos, or symbols to indicate where items belong in the class to help students be more independent in retrieving and returning items
- **materials in place –** create a consistent place for everything **-** "A place for everything and everything in its place."
- **bins or baskets –** to separate items or organize a space; can use for student's individual work "to do" and work "done"; clearly label
- **push pins labels -** children hang their name on the pin at a choice area; when all pins are full, the area is full
- **objects –** when objects are gone that area is full
- **black/white board or easel –** post homework or other information for repeated or prolonged reference
- **overhead projector or large monitor with computer** - for whole class lessons
- **rip-stop nylon –** use with mounting spray to post papers when wall space is limited
- **hold class meetings -** for group dynamics, problem solving, social skills, etc.; students are often able to monitor each other and themselves through discussions; the **Story Grammar Marker** is a terrific tool for problem-solving & solving disputes (see Reading/Decoding, Low Tech)

Tools & Strategies for Communication

***Targeted Skills*:**

speaking	receptive language	expressive language
listening	auditory processing	social use of language

No Tech

Tools & Strategies for Communicaton

body

- **body posture -** position, movement, or muscle intensity of arms, legs, head or body**;** use body proximity (stand close to student) or physical touch to maintain attention; student can use body posture to express physical state or responses if speech is not functional
- **facial cues** – enhance meaning by adding exaggerated facial expressions, making eye contact, smiling, frowning, raised eyebrows, grimacing etc.; student can use to express their feelings or responses if speech is not functional
- **gestures –** interpreted body movements that are familiar to the general population (e.g., "hold it", "come here", "ok"); can supplement student's verbal communication skills or be used to enhance instructor's auditory information
- **pointing** – using index finger (or hand, foot etc.) extended towards a target; helps focus attention and provides a visual referent; enhance understanding by simultaneously point to pictures, words, objects or symbols that correspond with spoken language
- **actions –** student or instructor physically moves about the environment or interacts with materials or others; student can use actions to get needs met or respond if speech is not adequate; allows for more independence
- **sign –** formal gestural system using hands and body to convey specific words and phrases
- **non-symbolic acts –** similar to gestures, these movements are part of an action sequence interpreted as communicative (e.g., reach for something, push away, extend an item to show it, hold arms up to be picked up)

speech

- **intonation** – different pitches or tones of voice; variation maintains interest, shows emphasis
- **dramatization** - exaggerated physical movements with oral expression to enhance meaning and maintain attention to the speaker
- **choral responses –** students answer in unison; reduces the pressure to perform verbally
- **singing –** using music or songs to learn or produce information; is stimulating and interesting; it engages different parts of the brain which may help compensate for verbal difficulties in some students
- **questions** – open-ended questions can be too ambiguous; ask specific questions to focus students' responses and increase involvement
- **simplify language** - reduce amount of auditory distractions; use consistent terms for familiar concepts, objects, routines or activities
- **repetition** - repeat main points frequently

presentation

- **closed set** - limited set of responses for student to select answer from; provide multiple choice options verbally (i.e. "Is this blue or red?") or visually (e.g. show four color options, student points to the right one to answer); relies on recognition of the answer (easier) as opposed to recalling the information (harder)
- **pause time** - allow adequate wait for student to formulate response; it can be helpful for some students not to speak in the interim
- **guided modeling/practice** - extensive practice of oral expression
- **multiple opportunities** – provide lots of chances to practice a skill to see if improvement is noticed
- **peer models** - allow student to hear others answer question before their own turn to become familiar with the content and format expected

Low Tech

Tools & Strategies for Communicaton

symbols

viusal representations which enhance or replace spoken language; symbols can be used for both understanding language and expressing messages

- **manipulatives** – objects which relate to the topic help reinforce the content and aid in recall of information
- **object symbols –** actual items or 3-D parts of items; may be mounted on cardboard or other surface
- **photos** – pictures taken with a digital or regular camera
- **line-drawing symbols –** color or black & white pictures that represent words and phrases; with or without text labels; does not require reading; BoardMaker software is good source (see high tech)
- **words/text –** prepared words or text composed or dictated by the student

presentation

- **pointer** – light or stick pointer to help to focus attention on relevant information
- **highlighting** - use tabs, flags, highlighter tape or pens to draw attention to target information

expressive communication supports

tools that are primarily intended to facilitate the student's output or expression of wants/needs, information, and social messages; can help students communicate if they have unclear speech, limited speech, word retrieval problems etc.

- **choice board** – provides a display of the options that are available for the student to select; display can use any of the symbol types discussed above; options are mounted or displayed on a board in the classroom or on another portable surface; provides an opportunity for the student to have control and input; suggestions for choice times: computer programs, partner to work with, order of work activities, free time activity etc.
- **Picture Exchange Communication System (PECS)** (Pyramid Educational Consultants; Mayer-Johnson Inc.) **–** structured program using discreet trials and passing symbols to partners; starts at level of basic wants/needs and gradually builds to longer utterances and different communication purposes; often used by people on Autism spectrum who may have difficulty engaging their partner or pointing
- **topic boards** – vocabulary display of messages that are related to a specific topic; includes symbols representing different parts of speech and communicative functions; can be easier for the student who can't/won't turn pages or who needs more focused vocabulary to improve participation
- **large vocabulary communication book –** a book of picture vocabulary organized into different categories (i.e. people, places, actions, food, animals etc.); contains both personal vocabulary and academically related terms; can encompass over 1000 pictures and requires page turning to combine words or pictures for a message; a comprehensive picture book that can be used to support a wide range of academic and non-academic interactions

- **dry-erase board** – student can write their responses to questions as opposed to speaking them; student can also read or point to a written response; helps with retrieval of information by providing a limited set of options for a student who has difficulty generating appropriate responses when needed; board is fast and easy to use – no preparation required ahead of time
- **notebook –** use note paper to record information that the student will need to remember or access; student can read informaiton aloud, copy it, or point to it to participate
- **letter board –** portable board with printed alphabet (regular or keyboard layout); student can provide letter cues when his or her speech is not understood; instructor can point to letters to spell out words as a model
- **conversation book/pages –** small book or page containing pictures (and text) that provides information about who the student is, their likes and dislikes and personal information; contains more social and personal vocabulary and can resemble a scrap book or photo album; offers students who have difficulties engaging in conversation an opportunity to set a topic and engage in less formal conversation; draws in the partner with interesting material

receptive communication supports

tools that help improve the student's understanding of incoming information

- **schedule** (Hodgdon) **–** sequence of symbols representing significant activities in the day; helps prepare students for transitions, gives information about what is going to happen, and is a visual reminder of the day's events
- **mini-schedule** (Hodgdon) **–** sequence of symbols representing tasks within an activity; fosters independence, provides information about expectations, and is a static reminder of what to do next; student can mark their place in the sequence by using a reusable sticky tab on the current item, or covering or removing completed items
- **calendar** (Hodgdon) **–** pictures and/or text displayed for a period of a week or a month at a time; helps mark significant events from home and/or school in a non-transient way; fosters discussion about past and future events
- **school/home supports** (Hodgdon) – page of symbols or text representing common home or school activities; student uses it as a basis of conversation when out of that context; can replace teacher to parent daily journal by putting information in a format that the student can access and understand and share
- **remnant box** – receptacle for scraps of items related to the day's activities; student uses it as a basis of conversation when out of that context; partners can comment on the items to model appropriate vocabulary and engage in a social interaction
- **color/picture coding** – colors or pictures are added to objects with numbers to signal time for students who are not able to use numbers functionally (e.g., use different color markers represent 5" intervals on a timer – "You have ten minutes till lunch – set the timer on the green"; place symbols on the hands of the clock – when they match up with the symbols on the perimeter, it's time for a specific activity)
- **"no" communicator** (Hodgdon) – dark post-it, "X" or other tangible representation of "no"; used to cover up items or objects or choices that are not available rather than simply saying "no"
- **instruction book/display** – large pictures with text representing common instructions or requests (e.g., "line up", "wait", "one more minute" etc.)
- **write-on wipe-off board** - written text or text with drawings on erasable board to enhance auditory input, provides a visual correlate for spoken language; reinforces spelling skills
- **notebook -** written text or text with drawings in notebook to enhance auditory input, provides a visual correlate to spoken language
- **letter board –** portable board with printed alphabet (regular or keyboard layout); facilitator points to initial letters or spells out key words to enhance spelling skills

recorders and accessories

- **tape recorder** - tape record messages, answers, etc.; useful for student who has trouble "performing" in a timed response situation (e.g., reading aloud, answering questions etc.); also helpful for longer pieces of information (e.g., reading a paragraph of text); may be motivating
- **head phones –** corded or cordless versions can help student focus on computer or other auditory equipment
- **assistive listening device –** student wears headphones and receiver and instructor wears transmitter, to help eliminate auditory distractions; volume is adjustable
- **portable voice recorder** – single message or series of messages recorded on a small palm held device; reminds students of what they need to do or get; allows for quick recording and repeat listening
- **Can-Do recorder** (AbleNet) **–** small device that records and reads messages placed on magnetic strips of corresponding cards; words, phrases or sentences can be easily recorded and changed; students can practice speech sounds, words; place picture or word on card and have student name first, then check their answer by sliding it through

digitized voice-output communication aids (VOCA's)

communication devices which use recorded speech paired with symbols to allow students to express themselves verbally; available in a great variety of styles, capabilities, and cost to match with student need

- **single message/target voice output communication aids -** capable of one recorded message and/or has one target to select; good for students who have difficulty making an accurate selection from a field or who has physical access issues
- **Step-by-Step Communicator** (AbleNet)
- **One-Step Communicator** (AbleNet)
- **Big Mack** (AbleNet)
- **Recording Picture Frame** (Radio Shack)
- **single level, multiple message voice output communication aids -** capable of retaining only one set of recordings at a time; less expensive than multi-level devices, but they need to be reprogrammed for each new activity; broad range of number of possible symbols depending on the device, so students at very different ability levels can satisfactorily use these
  - **Tech Four** (AMDI)
  - **Partner Four** (AMDI)
  - **Twin Talk** (Enabling Devices)
  - **Cheap Talk 4** (Enabling Devices)
  - **Cheap Talk 8** (Enabling Devices)
  - **Switch Module** (Enabling Devices)
  - **Mini-MessageMate** (Words +)
  - **MessageMate 20** (Words +)
  - **MessageMate 40** (Words +)
- **multiple level voice output communication aids -** capable of retaining more than one set of recordings at a time; each target can hold a multiple recordings, accessed via choosing a different level; more costly that the single level devices, but minimizes the need for repeated recording; wide range of target numbers on the display depending on the device selected
  - **Tech Speak** (AMDI)
  - **Tech Talk** (AMDI)
  - **Go Talk** (Attainment)
  - **Cheap Talk 8 with levels** (Enabling Devices)

- **Cheap Talk 4 with levels** (Enabling Devices)
- **Multi-Level MessageMate 40** (Words +)

High Tech

Tools & Strategies for Communicaton

devices

- **dynamic display voice-output communication aids –** computer based system that changes displays by selecting targets via touch screen, mouse or alternative access techniques
- **DynaMyte, DynaVox** (DynaVox Systems)
- **Freestyle, Gemini** (Assistive Technology, Inc.)
- **spelling based voice output communication aids** – user types in text, which is then spoken for communication partner
- **LightWriter** (Zygo Industries)
- **LINK** (Mayer-Johnson Inc.)

software

- **text to speech software –** software that speaks what is typed; speaks letters, words, or sentences or any combination of these
- **IntelliTalk II** (IntelliTools)
- **BoardMaker** (Mac/Win) (Mayer-Johnson Inc.) – 3500+ picture symbol dictionary with text labels; 10+ languages; available in Win and Mac platforms; useful for creating many of the low-tech communication supports above, overlays to go with mid-tech devices, as well as classroom visual supports
- **Print 'n Communicate** (Mayer-Johnson Inc.) **–** 21+ ready to print category based communication boards; requires BoardMaker software; useful as a starting point to which you add individualized message for a student's large vocabulary communication book (low-tech supports above)
- **Speaking Dynamically Pro** (Mayer-Johnson Inc.) – software that allows for the creation of communication messages using text, symbols or any combination of both; messages can be seen, spoken and/or printed

Comprehending, Composing and Organizing

***Skills*:**

organize	format	sequence	create	use personal knowledge
comprehend	integrate	compare	generate	recognize information / answer
summarize	synthesize	use / understand grammar		use / understand topic vocabulary

No Tech

Comprehending, Composing, and Organizing

learning

- **finger tap** – use hand or finger movement for syllable counting
- **preview** - provide overview of material to be covered, including main ideas, vocabulary etc.
- **multi-modal presentation** – use as many input modes as possible to provide information (visual, auditory, tactile etc.)
- **visualization** - teach imagery techniques for comprehension; provide specific instruction on pictures the student can use in their minds to help reinforce a concept
- **define terms** - define often used terms (post if possible) and use them consistently
- **connect information** – overtly note the link(s) connecting previously mastered knowledge to new material, record if possible
- **interesting content** - incorporate students' interests as examples; e.g., sports, fashion, games, collectibles
- **repeat exposure** - provide multiple opportunities to see materials, have access to the content, see the materials used in different ways
- **simplification** - reduce or simplify the number of steps for a student, eliminating less important steps to improve the student's focus on the more important goals of the activity

responding

- **guiding question** - provide thought provoking questions, written or verbal, to help guide student's response
- **choice of response mode** - allow student a choice of methods for demonstrating knowledge; e.g., text, drawing, oral, multimedia
- **closed set** – offer a limited set of responses for student to select answer from (verbal or visual multiple choice) rather than open set (e.g., fill-ins) for students who have difficulty generating information
- **group writing** – students work in a group to generate ideas; different student take different roles, relying on individuals' strengths
- **brainstorm** - individually or in groups generate ideas freely; if recording, write topic in the middle of page then quickly free associate, listing all responses without judgement; related ideas branch out from the topic and can later be grouped into clusters; add appropriate picture/symbols (e.g., spider, tree, flower, etc.)

Low Tech

Comprehending, Composing, and Organizing

materials

- **veltex** (P & A Sales) – soft material for securing items backed with velcro; eliminates the need for soft Velcro and allows for more flexible placement; make a veltex glove to place story characters (backed with velcro) or other elements; a veltex covered board holds cards with main ideas, key words, etc. that can be moved, removed, added to etc.
- **magnifying glass** – a fun way to "find" information; adds motivation and makes it easier for students with visual limitations

- **notebook** – a specific location to record key points from a lesson; student can refer to it when preparing a presentation, reviewing material for discussion or completing related lessons
- **exemplars/models** - post examples of completed assignments (past student work or instructor created), noting scores awarded and provide a rational for each
- **materials list** - personal or class version list of items needed to complete task
- **posted information** - post written directions for hardware and software use; post homework on the board; post visual reminder of topic; clearly define and post the goal and purpose of the activity; record auditory information in a visual form to remind students and decrease repetition

organizing time or space

- **student planner** – personal calendar and notebook for student to keep record of events, assignments, important dates etc.
- **visual schedule** – order of student turn-taking, daily schedule, order of tasks
- **check lists** - "Did I...?" or "To do..." lists which students check as they go
- **prompt cards** - to illustrate the steps required to complete a task, including materials needed
- **environmental labels** - using pictures, words, photos, or symbols to designate where items belong in the class or student's personal space (i.e. locker, desk, notebook)
- **basket/bins** - use bin or baskets for work "to do" and work "done" clearly defined
- **push pins hangers** - use push pins under photos of choice areas in class - students hang their name on a pin, when pins are full the area is full
- **object location markers** – associate objects with specific activity choices (i.e. paintbrush for easel, disk for computer); students select activities by their object and when the objects are all selected that area is no longer an available option; teacher shows the object when referring to the activity to enhance understanding
- **pencil holder** – velcro pencil to the desktop to keep it from rolling off; cut slits into foam (i.e. window insulation foam) for holding pencils and secure foam to desk

organizing information

- **color coded template** – assign specific colors to parts of speech
- **color code** – assign specific colors for the main idea or other key information, e.g., character, setting, problem, etc on key points as they are read
- **highlight -** main ideas or other key information (e.g., character, setting, problem); to focus on key points as they are read; highlight the target vocabulary words from a larger field of text; highlight syllables
- **tab/flag –** use removable sticky tags to designate main ideas or other key information (e.g., character, setting, problem); place on key points as they are read; show where specific information can be found by matching colored flags placed on the worksheet and the related text
- **colored tape –** color code like items (e.g., easiest books = red tape on spine)
- **index cards** - segment components so they can be physically manipulated; create sentences from individual word cards, diagram sentences, recognize answers to comprehension questions from a field, record vocabulary words; use text alone or text with pictures/symbols
- **sentence strips** – segment components of paragraph or story so they can be physically manipulated; for sequencing stories, retelling story, recognizing answers to comprehension questions
- **sticky notes** – different colored post-its for main terms, headings etc; for sequencing events "first", "next", and "last"; reminders in relevant locations; cover unused parts/simplify computer screen; cover specific sounds in words or words in sentences; post as reminder in relevant locations; use to record brainstormed ideas on large mural or poster paper (later group into categories, with links made with colorful markers and illustrations added); colored stickies can be used to label headings/categories; record possible responses or choices on separate sticky notes, when the student selects one they place the note in the answer spot
- **colored pens** – edit work; use in note-taking to differentiate vocabulary, types of information, sections etc.

graphic organizers for information

- **word splash** - display selected terms randomly and at different angles; a starting point for students to brainstorm and generate complete statements which describe the relationship between each term and the broader topic.
- **graphic organizers -** done by hand or with software (see High Tech); the following descriptions of graphic organizers were taken from the Inspiration software manual:
  - **concept maps** – hierarchical diagram representing concepts from the most general to very detailed, linked by descriptions of the relationship
  - **idea map** – visual brainstorming to generate ideas and develop thoughts
  - **web –** main idea branches out and connects different pieces of information; good for story analysis
  - **matrix** - create a chart/grid to show attributes, compare/contrast, show similarities/differences visually e.g., names of animals on the horizontal axis, characteristics of the animals on the vertical axis
  - **Venn diagram** - 2 or more overlapping circles which are used to show similarities and differences visually, e.g., circle A (characteristics of desert climate) is different from circle B (characteristics of coastal climate) and where they overlap (section C) is the list of shared characteristics
  - **continuum** - use for time lines of historical events, degrees of something, shades of meaning, rating scales; e.g., continuum of low to high tech tools for education

learning

- **word dice** – words written on each side of a cube (i.e. made from milk cartons) for sight word development, vocabulary, synonyms etc.
- **personal materials** – student is provided with a personal version of class material, to increase focus, allow to manipulate materials, customize for their needs etc.
- **illustrations -** use drawings to aid in determining text meaning; express understanding of information through drawings; use to generate ideas
- **pictures** - use photos, pictures, and symbols with words to convey ideas and promote recall of information; (e.g., **BoardMaker** – Mayer-Johnson Co.)
- **word wall** - lists of words posted with or without pictures and definitions; words can be organized into groups (e.g., by topic, parts of speech)
- **objects** – use actual objects to enhance meaning of text or understand and recall specific vocabulary; make representations of significant people, places or things using clay, paints, or collages
- **Story Grammar Marker** (Discourse Skills Productions, Inc.) – to preview/review story narrative and support reading of text; this interactive, tactile tool made of yarn, bead, and objects is used to represent narrative structure; students each use smaller versions of the Markers to work along with the teacher; aids in organization/recall; also a terrific tool for problem-solving & solving disputes; different versions for older versus younger students
- **visuals with speech** - add objects, photos, colored line drawings, or written words to supplement spoken language
- **word rings –** laminated vocabulary cards or sentence strips hooked onto large metal book rings; keeps relevant vocabulary together; can also be used for directions, e.g., for work on the computer - instructions can be listed on colored index cards; the teacher refers to one of the colored cards, "Now we are working on this direction."
- **word windows** - bind together letter cards (e.g., b, c, f) and word families (‘at”) – student flips cards to form new words (e.g., bat, cat, fat); repeat with sentences, creating new sentences by flipping word cards to change the content
- **story starters** – student is provided with part of a sentence or paragraph, which s/he then completes; good for student who have difficulty initiating topics or generating ideas

- **vocabulary list** - create a personal vocabulary list for a student with words that need to be reviewed
- **word games –** provide fun ways of learning key vocabulary, definitions or spelling words by using word searches, crossword/math puzzles, and mazes created and printed from the web (www.Puzzlemaker.com)

Mid Tech

Comprehending, Composing, and Organizing

- **personal recorder** – small, hand held, recorder to record homework assignments, things to remember etc.
- **hand-held talking dictionary/speller –** e.g., **Franklin Homework Wiz & Speaking Homework Wiz,** dictionary/thesaurus; spell check; create personal word list; words appear on small screen; target words, definitions, and synonyms can be pronounced aloud in speaking version; offers practice in cursive and print handwriting; arithmetic tutor & calculator; **Speaking Language Master, Special Edition** a more sophisticated device which can be customized for different learning disabilities and has adjustable speech speed; ideal for blind users; an extra large screen is provided for visually impaired students (these and other versions available from Franklin Electronic Publishers)

High Tech

Comprehending, Composing, and Organizing

- **Power Point slide show** (Microsoft Office) - create slide show presentation of information; one slide per word for word identification, review of definitions etc.; set the timing for moving from one slide to another at a pace appropriate for the student and increase the time as s/he improves
- **real symbol icons** - create easily recognizable icons for specific computer programs using screen shots then put them in the Launcher on the computer
- **Inspiration** (K-12) **& Kidspiration** (K-3, talking feature; Touch Window access) (Inspiration Inc.) **–** provides a variety of formats for visually representing, organizing, recording and relating ideas and concepts (see "graphic organizers" above)

Tools/Strategies for the Mechanics of Writing/Drawing

Skills:

writing mechanics | produce drawings | spelling

No Tech

Mechanics of Writing/Drawing

- **time -** allow more time to complete assignments
- **reduce quantity –** require less output
- **model -** teacher/peer/aide writes the word to show student how to form letters
- **fill-ins –** allow student to fill in key words as opposed to writing entire sentence
- **modify** – simplify written forms; make templates for student to complete
- **multiple choice –** offer field of potential answers to circle as opposed to writing
- **warm-up exercises –** for hands/arms prior to writing

Low Tech

Mechanics of Writing/Drawing

- **vertical/slanted surfaces –** angles the writing surface for easier viewing or reaching; may allow access from varying positions (e.g., sitting, standing, kneeling)
  - **slant board**
  - **notebook** - turned sideways, sloping toward student
  - **easel** - table top or large standard easel
  - **book holder** – keeps book upright, opened to appropriate page; lucite version protects the page by displaying it behind the lucite board
  - **chalkboard** – small, personal version or wall mounted; large/small chalk, for writing/erasing
  - **wall –** tack papers on a wall; use varying sizes and types of paper, e.g. worksheets, mural paper, wallpaper
  - **velcro cloth** (P & A Sales) **–** adhered to boards, walls, or other slanted surfaces; items can be attached with velcro
  - **felt board** – adhered to boards, walls, or other slanted surfaces; flat and folding flannel boards are available; items can be attached with velcro
  - **card holder** – small plastic or wooden strip with a notch or clip for holding flash cards, playing cards, pictures, etc. upright
- **tactile materials -** provides sensory and kinesthetic feedback
  - **sand –** trace letters, numbers etc. with finger in sand
  - **finger paints -** trace letters, numbers etc. with finger in finger paint
  - **sandpaper –** cut out letters, numbers etc. for finger tracing; can be mounted on cards
  - **puff paints –** write out letters, numbers etc.; when dry, this 3-D paint can be traced
  - **Hi-Mark 2000 (3D Marker) -** plastic paste can be applied on paper, cloth, wood or metal; for clothing, canned goods, appliances, making maps tactile; can be washed
  - **glue –** write out letters, numbers etc. to create a raised version to trace with finger; add glitter, sand, salt or any other material to create different textures
- **clipboard** - to hold papers for drawing, writing, etc.

- **non-slip pads** - keeps objects from slipping on table/wheelchair, e.g., between slantboard and table; on seat of wheelchair; under clipboard with writing paper (e.g., **Dycem** – Therapro; Contact brand **Rug Lock, Grip Liner** - grocery/variety stores)
- **finger grip ruler** – regular ruler with ridge in the center to grasp easier and keep fingers out of the way while drawing a line (office supply, LoTTIE Kit, educational supply)
- **highlighters -** use in place of pen/pencil to indicate important information, to draw, etc.
  - **markers –** individual colored pens
  - **tapes –** thin highlighter tape can be unrolled and cut to any length to cover words, sentences etc.
- **tabs –** individual dispenser of colored tabs can be placed next to or over important info, mark a page etc.
- **word walls -** to reinforce frequently used words and topic/story vocabulary; create on blackboard, whiteboard, or cards posted on walls**;** words may be grouped together by category and color-coded
- **word rings** - another way to reinforce topic/story vocabulary by putting text, drawn/cut-out/scanned pictures/drawings, story characters, Picture Communication symbols, etc. on oaktag cards; then create rings with the cards using binder rings, shower curtain rings, pipe cleaners or yarn
- **handwriting instruction books/guides –** provides instruction on how to write (e.g.**, Beginning Connected, Cursive Writing**, Calvert School Store)
- **tracing -** "writing" letters in sand, finger paints, salt, beans, etc. to practice letter formation and provide kinesthetic feedback
- **tactile letters -** made with sandpaper, Hi-Mark 2000, paints, glitter, glue, etc. for tracing, to practice letter formation and for kinesthetic feedback
- **3D outlines -** enhance lines to make them tactile using puff paints, glue, hot glue, Hi-Mark 2000
- **magnetic alphabet** - arrange into words for writing, spelling on magnetic surface (e.g, cookie sheet)
- **magnetic alphabet board -** for use with magnetic letters/numbers/words
- **magnetic printer paper -** to create magnetized letters, words, graphics, etc. (office supply)
- **Scrabble/letter tiles** – to arrange into words for writing, spelling
- **letter/number representations –** made out of clay, paints, collages; for tactile and visual reinforcement; make a clay alphabet/numbers; have students make their own
- **dot-to-dot letters –** letters written in dots for student to connect and complete
- **pencil grips** (Therapro, school supply) **-** stabilizes student's grip on pen or pencil; commercially made or make your own with a piece of foam or non-slip material; (e.g., **Rug Lock** office supply, grocery)
- **adapted pens/pencils** – soft, padded thicker grip (**Dr. Grip** office supply); small, oval, fits in palm (**EvoPen**, TheraPro); triangular pencils
- **lighted pen** - battery-operated, with a light at the tip to support visual tracking while writing (**Nightwriter** Electro-Optix)
- **writing implements** – try markers, paints, fat crayons/pencils, grease pencils, crayons, markers, finger paints, paints, Chunky brushes (big handles); experiment with what works best for the student
- **paper position** – vary the standard positioning may not work for all students
- **enhanced line paper** - commercial raised line paper or adapt your own paper by printing lines in a color, then laminating the paper and gluing over the lines to enhance them, e.g., **Right-Line Paper** - Wide Rule or STOP-GO red/green (Therapro)
- **dry erase board / small chalkboard -** write and erase surface for students to communicate quick messages with wipe-off markers/chalk and erasers; use with erasable crayons for more drag
- **plastic writing guides** - keeps pen/pencil within a limited rectangular space (ILA, LoTTIE Kit)
- **double-sided tape –** use to hold plastic writing guide in place
- **stencils/templates, tracing paper** – to serve as guides for practice
- **rubber stamps & stamp pad** - for letters/numbers/name (Educational Insights, LoTTIE Kit)
- **Magic Rub Erasers** - easier to use than regular erasers; don't tear paper (Sanford/Eberhard Faber/LoTTIE Kit)

- **correction/cover-up tapes** - to correct mistakes in writing if erasing is a problem (office supply, LoTTIE Kit)
- **tape** - to hold writing paper in place on desk (office supply)
- **prewritten words/phrases on labels/cards/paper**- for answering questions or other writing tasks
- **peer/aide note taker** – use carbon paper, NCR paper
- **keyguard** - flat board with cutouts for keys which sits on keyboard and provides more control for user; prevents unwanted choices
- **large print keyboard labels** – stick-on labels make letter/number/function keys more visible; upper case and lower case (with color-coded vowels) available; available in white on black (high contrast) or black on beige (to match keyboard); e.g., **Zoom Caps** - (Don Johnston)
- **alternative keyboard keyguards** - provide more control for user to prevent unwanted choices, e.g., **IntelliKeys** and **Discover:Board**
- **mouth stick** – for typing/computer control if use of hands is extremely limited

Mid Tech

Mechanics of Writing/Drawing

- **digital voice recorder** - record homework assignments, etc. (office/electronic supply)
- **AlphaSmart –** portable battery-powered word processor with option of data transfer to desktop computer; simple, easy-to-use word processor; 4/ lines of text on screen; additional software available for more features (e.g. C**o:Writer** word prediction)
- **DreamWriter** (Brainium Technologies) – portable battery-powered word processor with option of data transfer to desktop computer; 3 models; more features, but also more complex to use than AlphaSmart; 4 or 8 line display (model 150) to 18 line display (model 500); keyboarding, spell check, math drills, etc.; access features include sticky shift key, calculator, spell check, dictionary, daily schedule (model 500)
- **Hand-held talking dictionary/speller –** e.g., **Franklin Homework Wiz & Speaking Homework Wiz,** dictionary/thesaurus; spell check; words appear on small screen; target words, definitions, & synonyms can be pronounced aloud if speaking version; offers practice in cursive and print handwriting with animated on-screen guide; arithmetic tutor & calculator; **Speaking Language Master, Special Edition** a more sophisticated device which can be customized for different learning disabilities and has adjustable speech speed; ideal for blind users; an extra large screen is provided for visually impaired students (these and other versions available from Franklin Electronic Publishers)
- **tape recorder** - record answers to tests, etc.; record class lectures (if permitted by teacher)
- **alternative large key keyboard -** for physical/visual/cognitive issues or young children**, e.g., Big Keys Keyboard** (Mac/PC, ABC or QWERTY order, Greystone Digital) or **My First Keyboard** (PC, ABC order, KidTech)
- **full-featured alternative keyboard** - large, accessible touch membrane board offers a choice of keyboard overlays plus a wide variety of commercial and teacher-made overlays, allow students to "write" on the computer by pressing letters/pictures/words, includes speech output, e.g., **IntelliKeys** (IntelliTools) or **Discover:Board** (Don Johnston)
- **switch, trackball, joystick –** alternative to keyboard control of computer

- **"Easy Access" (Mac) or Accessibility Features (WIN)** - Both Mac & PCs have keyboard control panels that are already on the computer or on Utility CDs, which come with the computer. They allow the user to use sequential keystrokes when two keys need to be held down together. They also allow for slowing or stopping the repeat function of keys, using the keyboard to control mouse/cursor movement and other features.
- **one-handed typing programs** – e.g., **Five Finger Typist** (SoftDawn Software c/o Mayer-Johnson)
- **word processing software** - **Imagination Express** (Edmark) has a record feature for students to record narration for pictures; then the student can use the recorded text to support writing or a peer can assist in typing in text
- **computer draw/paint software -** allow students to be artists even if they can't manipulate a drawing tool; used with the mouse**;** (e.g., **Kid Pix Studio Deluxe (K-6), Corel Draw K-12), SuperPrint Deluxe (K-6)**)
- **word prediction software -** anticipates the words the student wants by offering a list of words to choose from and limiting key strokes (**Co:Writer,** Don Johnston; **Read & Write Gold,** TextHelp)
- **Microsoft Word *Forms* feature** - can be used to create templates for students to complete on computer or on hard copy (go to View, Toolbars, Forms)
- **touch sensitive screen** - selections are made by touching the screen as opposed to mouse clicking - e.g., **TouchWindow** (Edmark)
- **multimedia software -** can be used to create on-screen activities for students, e.g., **PowerPoint, IntelliPics, HyperStudio, Kid Pix Deluxe,** etc.
- **Discover:Switch** (Don Johnston) - provides physical access to all software programs, including on screen keyboard, offers text-to-speech output
- **Discover:Ke:nx** (Don Johnston) **–** box and software which allow for keyboard/mouse alternatives, e.g., switch, trackball, etc., to be used with any computer program
- **head control of computer -** user can write with on-screen keyboard, HeadMouse (Origin Instruments) or HeadMaster Plus (Prentke Romich)
- **on-screen keyboard software –** input via switch, mouse, joystick, trackball, or Eye Gaze, etc., provides access to a keyboard image on screen and letters are selected one at a time through direct selection or a process of scanning/highlighting the keys for selection, e.g., **Discover:Screen** (Don Johnston), **On Screen** (R.J. Cooper)
- **scanner** (plus optical character recognition & word processing software) - "writing" is done by manipulating scanned-in text rather than typing in text, e.g., **OmniPage Pro** (ScanSoft)
- **voice recognition software –** user speaks into microphone, which translates speech into text; used for specific cases of intensive physical limitation or learning disabilities, e.g., **Naturally Speaking** (ScanSoft)
- **JOUSE** (Prentke Romich) - joystick-operated mouse that is controlled by mouth; attaches to desk; sip and puff mouse activation
- **Eagle Eyes** (Boston College) **-** allows for control of the cursor on the computer through eye movement using electrodes (for drawing and spelling)
- **eye gaze -** allows for computer control through eye movement; used for communication, environmental control, word processing, games, etc.; e.g., (LC Technologies/Eyegaze Systems)

Tools and Strategies for Numeracy

Skills:

exploration	probability	whole number computation	estimation
problem-solving	geometry	number sense & numeration	fractions & decimals
evaluating for accuracy	spatial sense	patterns & relationships	measurement
information organization	logical & critical thinking	strategy identification & statistics	
concepts of whole numbers			

No Tech

Numeracy

- **minimize number of items on page** - some students are overwhelmed with too much information
- **eliminate need to copy problems** – have students record answers only
- **avoid mixing "signs" on page -** to avoid confusion
- **provide additional time to complete task(s)**
- **peer/adult support** - read problem & record response
- **cross-age tutoring** – pairing older/younger students can benefit both
- **mental arithmetic** – if writing presents a barrier have student narrate mathematical processes to peer/adult
- **visualization** – teach imagery techniques, e.g., have students narrate math process
- **mnemonic devices** – to aid memory, create chants, rhymes, raps, etc., where 1st letter of word represents a step
- **counting on fingers**
- **"Finger Math"** (PRCVI & Chisenbop) – assist mastery of mental calculations, method of using one's hands much like the abacus; Tutorial: http;//klingon.cs.iupui.edu/aharris/chis/chis.html
- **multi-modal instruction** – use as many input modes to provide information (visual, auditory, tactile, etc.)
- **microworld** – create motivating, imaginary number related stories for reluctant students, e.g., *"The Queen of MathWorld"*

Low Tech

Numeracy

modified graph or column paper

- **enlarged graph paper** - purchase in large sizes, create on word processor & print out, or enlarge on photocopier; 1" grid chart sized graph paper available in easel pads; blue or yellow grid lines on Post It self-stick easel pads also available (office/school supply)
- **bold and/or colored line graph/column paper** – create graphs or columns on word processor & print out or purchase math grids disk (Onion Mt. Technology)
- **raised line graph paper** – use puff paints to enhance lines or purchase embossed graph paper (American Printing House for the Blind)
- **puff paints** (Michael's, Playtime, art supply) – use to make lines tactile; highlight lines on paper or
- laminate the paper or put clear acetate over the paper and mark the lines to create a reusable tactile grid; can be used to make lines on rulers tactile as well
- **glue** - use colored graph paper or create colored lines, grids, etc. on a word processor; laminate or put
- into a plastic page protector as above, then make the lines tactile with clear glue
- **Hi-Mark 2000 (3D Marker) -** plastic paste can be applied on paper, cloth, wood or metal; for clothing, canned goods, appliances, making maps tactile; can be washed
- **Post-Its –** use to mark off blocks on a chart or wall sized bar graph
- **tape –** to prevent papers from moving around on the desk

management of manipulatives

- **rug lock padding** (housewares/grocery store) (CAUTION: be aware of latex sensitivity) - to increase stability of manipulative pieces, e.g., cubes, shape tiles, etc. on desk or table
- **containers for counters** – for sorting, categorizing by number, color, size, etc.

counting/computation aids

(students explore, find answers, and practice number order, sequence & targeting skills)

- **flannel board numbers/signs –** purchase or make your own
- **Ten-Row Counting Frame** (Learning Toolbox) **–** multi-level abacus; can be accessed by mouthstick, pointer, side of hand or toes; use for skip-counting, addition, subtraction, multiplication, & division
- **counters** – beans, checkers, discs, chips, marbles, etc.
- **beads –** (loose or on a string), for counting, making patterns, etc.
- **rubber number stamps** (Discount School Supply, Onion Mt. Technology) - for students with motor challenges who have difficulty writing numbers; can also be used for tactile number identification, e.g., put stamps in a bag and have students reach in and identify numbers by feel; if stamps are difficult to pick up, attach a wine cork or dowel to the stamp with hot glue to create a handle

place value/base ten

- **Cuisenaire rods** (Cuisenaire) – colored wooden rods representing numbers/place value (ones = white cube, two = red cube, etc.; connecting rods now available; use for counting, matching, comparing, etc.
- **Base Ten Blocks Math Lab** (Cuisenaire) **–** for regrouping, operations and place value
- **Unifix cubes** – plastic connecting multicolored blocks

fractions

- **fraction stamps** (Onion Mt. Technology) - six rubber stamps with shaded pie chart pictorials with numerical fraction equivalents
- **Rainbow Fraction Tiles** (Learning Resources – Toy Magic) – pie pieces in a little box**;** use to:
  - teach the vocabulary of fractions (turn tiles over so the fraction name is not showing; the largest tile is named *whole*; encourage students to find halves, fourths, etc.)
  - concepts of numerator and denominator (students make a visual of 3/4 of their tiles)
  - compare fractions with fraction name showing (select two tiles; students explain how they know that one tile is larger than the other)
  - equivalent fractions (how many 1/6 tiles will make 1/2?)
  - mixed numbers (use the whole for 1; add other fraction tiles; ask students to say & write mixed number)
  - design simple word problems giving students the opportunity to add/subtract fractions
- **fraction folding paper activity –** to demonstrate multiplication of fractions, e.g., 1/2 x 1/2 = 1/4: fold a piece of paper in half, draw lines across the half with a colored marker, unfold the paper, turn it and fold it in half the other way, draw lines with a different colored marker, unfold the page; the section of the page with both colored lines represents 1/4

factoring

- **Dr. Factor's Super Blocks** (ETA/Cusineaire) **-** identifying prime numbers and finding the greatest common factor and lowest common multiple of two numbers using Factor Blocks
- **colored discs on 100 chart** – to find common multiples; use discs to mark off multiples of a number (4), then multiples of another number (8), then see where the overlap or common multiples occur

dice

(ETA/Cuisenaire) - wide variety of dice, for learning numerals, fractions, operations, probability, etc.

- **blank dice** with self-adhesive labels to make your own
- **large dot dice**
- **numeral dice** opaque 3/4" dice with large black numerals on white
- **octahedra dice** numbered 1-8; **decahedra dice** numbered 0-9; **polyhedral dice** - one each of 4-, 6-, 8-, 10-, 12-, and 20-sided
- **1/2"dot dice** - red, green and white
- **color number cubes** , cubes in four colors are used as "place value" dice.
- **10-sided dice -** each die, 3/4" with black numerals. Set of 10.
- **10-Sided decimal dice**, 3 red, 3 green and 4 white die are each marked in tenths from 1/10 to 10/10
- **giant foam dice -** 5" foam dice; red on yellow; dots, numerals, or operations

- **Braille/tactile dice** (Independent Living Aids) - large (3/4" X 3/4") dice with black tactile dots on white
- **Braille Low Vision Ruler** (Independent Living Aids) - Braille & tactile symbols with 1/2" large black numbers; lengths are marked with tactile lines

money

- **coins and bills –** (Attainment, school supply)
- **Coinulator** (
- **rubber coin stamps** - Coin Heads Stamps & Coin Tails Stamps (Learning Resources – Toy Magic)
- **magnetic labeling tape** (office supply, e.g., Office Depot, Walmart,) 3/4 " X 197" - use for backing coins to put on a white board

algebra/geometry

- **Algebra Tiles** (Cuisenaire) - geometric models address algebraic concepts, including adding and subtracting polynomials, factoring trinomials, and the zero principle; each tile represents a different quantity: x, x2, y, y2, xy, and a constant; grades 6 and up
- **colored shapes (paper or blocks) or quilting** – provide practice with geometric shapes
- **tangrams** - ancient Chinese manipulatives consisting of 7 geometric shapes that are used to promote spatial coordination through the reproduction of patterns. (educational supply)
- **geoboards** – tool for investigating geometry, patterns, comparing, fractions, number recognition & operations; rubber bands are used to create shapes/designs (educational supply)
- **flash cards –** for practice and peer challenges
- **number lines –** large (enlarge on photocopier), tactile, life size; used to show size, order, all types of numbers together (positive, negative, fractions, decimals, and whole), scale, i.e., thermometer, graphing, (axes))
- **number line stickers** – (school supply)
- **Mathline** (Howbrite Solutions, Inc.) – abacus style tangible number rod(s) with gliding markers to visually demonstrate relationships, basic concepts, operation sense, size, quantity and calendar skills. K-12; count by 2s, 5s & 10s; solve problems with the 4 basic math functions

math language supports

- **math word/number rings –** (Target, Walgreens, etc.) laminate math vocabulary words on paper/cards and hook onto a key ring for easy access; words can be printed on clear printer labels and put on cards or magnetic paper for a magnetic word wall/board; word rings can be attached to student's zipper pull, belt loop, or button hole; instructions/steps in a process can be listed on colored index cards; the teacher refers to one of the colored cards, "Now we are working on this step."
- **Clip and Go –** clips with key rings on them for words, communication symbols, numbers, etc; attach key ring to the clip, then use as above

magnetic numbers, shapes, objects, etc.

(to provide stability and/or vertical work surface; for counting, sorting, etc.)

Caution! – Keep all magnetic objects away from computers, disks, etc.

- **magnetic business cards/sheets (**office/art supply, e.g., Play Time (sheets), Staples (cards) - magnetic backing with sticky top allows for creating manipulative math, reading, or other subject material objects; create attribute games, etc.; the sound the magnets provide auditory support as well as tactile
- **magnetic labeling tape** (office supply, e.g., Office Depot, Walmart,) 3/4 " X 197" - easy to cut and apply to objects, cards, etc.; use for backing coins to put on a white board
- **magnetic surfaces -** easels and white boards - (ABC Stuff: Resources for Reading, office supply) – other magnetic surfaces include cookie sheets, metal rulers/yardsticks, colorful magnet boards/round trays (Dollar Store)
- **magnetic tiles** (Walmart)
- **magnetic paint** (ABC Stuff: Resources for Reading) – paint walls or other surfaces to make them magnetic; can be painted over with regular paint and will remain magnetic
- **reusable labels** (Avery) – attach to magnetic business cards to make them reusable
- **magnetic visual schedule –** use to list schedule of activities visually; can be moved around from day to day
- **magnetic 100s chart –** enlarge 100s table on photocopier and put on metal cookie sheet/ ruler or yardstick; back checkers with magnetic tape/backing to use for activities, e.g., use for **finding common multiples** activity (mark all multiples of 3 with red checkers & multiples of 6 with black; find points of overlap)
- **make blocks magnetic or create magnetic-backed cardboard/paper shapes -** to complete shapes puzzle templates
- **magnetic word rings** - words can be printed on clear printer labels and put on cards or magnetic paper for a magnetic word wall/board

adaptations for young students or any students with motor challenges

- **enlarge worksheets/flash cards -** large cards can increase handling ability for students with weak fine motor skills or to assist teacher during demonstrations
- **personal chalk/white board** – reduces frustration for students with writing/erasing difficulty; practice is more error free
- **finger grip ruler** (Westcott, office supply, educational supply) – for students with fine motor difficulties; allows ruler to be grasped with fingers by a raised bar in the center, away from drawing edge
- **ruler with wooden handle –** attach with a screw
- **large number tactile "school ruler"** (Westcott; office supply) – large numbers, raised marks and notched side facilitate use by young students or those with visual impairments
- **plastic writing guide** – (Independent Living Aids) 8 1/2 X 11 hard plastic frame with opening for viewing text, for writing in, or turned horizontally, for keeping numbers in columns
- **Do -A-Dot Art!** Sponge Tip Applicator (Do-A-Dot Art!, Discount School Supply) - 1" diameter washable bingo markers; 4, 6 & 24-pack; students with motor difficulties can grasp easily to complete patterns on large grid paper, form numbers, color in sections of a graph, make measurements etc.
- **WikkiStix** (Omnicor, Inc.) colorful waxed yarn strips – use for tactile reinforcement
  - form numbers, perform computations
  - group & bundle to demonstrate place value
  - use as units of measurement
  - highlight or emphasize parts of a problem on board
  - use as points and lines on a plastic graphing mat

visual/learning challenges

- **enlarged graph paper** (office/school supply) - purchase in large sizes, create on word processor & print out, or enlarge on photocopier; 1" grid chart sized graph paper available in easel pads
- **bold and/or colored line graph or column paper** (Onion Mt. Technology) – create graphs or columns on word processor & print out or purchase math grids disk from Onion Mt. Technology
- **black line masters of graph paper –** available in variety of formats, e.g., dotted lines
- **enlarge worksheets/flash cards** – use photocopier to enlarge for students with visual challenges; eliminates visual distractions; may reduce anxiety when presenting numerous problems
- **math matrix** – charts/tables; number fact sheets, 100's, place value, combinations & formulas, large print/Braille, bold lined, colored & raised; addition, subtraction, multiplication, division, e.g., Multiplication and Division Table (APH)
- **page, card, picture holders -** for small versions of charts, tables, directions, vocabulary, etc. on student's desk**;** sections of directions may be enlarged and set in the holder
  - **Page Up –** (MTM, Staples, office supply) page holder for paper which takes up very little room - 2 3/4"L X 2 1/4"W X 1 3/4" H
  - **acrylic card holder** – (Maxi-Aids) 10" L X 1" H; 1/2" wide slots narrow down to 1/8" to hold cards securely; or purchase an acrylic recipe card holder
  - **acrylic picture frame** (photo/craft stores) - stand-up version sits on table/desk

- ***Velcro & Veltex***
  - **hook and loop velcro sensitive fabric, e.g., Veltex** (P & A Sales, Discount School Supply, fabric stores) – for securing items backed with velcro or flannel; provides greater control for students, especially those who prefer a slanted or vertical work surface; create interactive fabric gloves (e.g., use velcro-backed numbers or objects/pictures on fingers for counting, 1-to-1 correspondence, etc.), books, wall or tabletop boards & easels, vests, totes with plastic pouch on one side to hold manipulatives, etc.; make them out of the fabric or purchase these items from Discount School Supply (items are not always available)
    - **Velcro** (P & A Sales, Discount School Supply, Freeman Supplies) **–** sticks to hook and loop soft fabric, and can be used with the traditional loop backing to mount items/objects, e.g., can be used to attach puzzle pieces to puzzle back which is then attached to wall or floor

visual/color highlighting

- **color coding strategies**, e.g. green to start / red to stop, e.g., color code columns for math functions making the ones column green and the tens column red to remind students to begin with the ones column
- **colored paper** - photocopy math activity/flash cards for games onto different colored paper to accommodate different levels of visual acuity and to provide contrast to increase readability
- **highlighter** – a visual marker to highlight ones/tens/hundreds or to emphasize key words, instructions, signs, etc.
- **highlighter tape** – for tracking down or across columns & charts; to create a colored line across a graph at a designated point on one axis, making it easier to find the desired intersection point when moving from the second axis to the point; to draw attention to items/figures
- **colored acetate filters** – laid over text/worksheets, these can make a tremendous difference for students who have Scotopic Sensitivity Syndrome (SSS - a sensitivity to light which affects depth perception); especially helpful for students with autism/Asperger's Syndrome, e.g., **Transparency Pockets** (office supply stores) or filter kit from ***See It Right*** which includes multi-colored sets & instructions (See It Right); **special colored glasses** - may be necessary for some students with severe SSS
- **personal chalk/white board** – writing in large numbers supports visual access

- **removable highlighter tape** (Lee Products) hard to find - Crystal Springs Book, NH; ABC Stuff: Resources for Reading) – transparent, neon colored, low tack roll of tape used on top of text to highlight; can be removed, reused and written on; 1/2" for tracking down/across columns & charts, finding points of intersection, drawing attention to items/figures; also available in 1 7/8" Big Book size
- **peel off arrows/flags** (Redi-Tag, use to highlight/emphasize information/instructions when you want work materials to be re-used; indicate key information, e.g., the most or least number of items on a graph
- **highlighter markers** (Avery Dennison, Sanford) – neon colored transparent markers used to highlight text/numbers without obscuring them
- **sticky dots** (office supply) - use to highlight/emphasize information/instructions when you want it to be permanent

motivational activities

- **mathematical games –** student/teacher made; to foster mathematical communication as students explain and justify their moves
- **sports math** – high interest, functional activities, e.g., keeping score, recording and figuring game statistics, player averages
- ***Math Curse,*** Jon Scieszka & Lane Smith, Viking/Penguin Books, 1995. (Amazon.com) A student wakes up one day and everything becomes a math problem.

computer and off computer access

- **Loc Dots, Bump Dots** (Maxi-Aids, Independent Living Aids) - 6 raised stick-on dots to use as reference points on keyboards to increase productivity and decrease typing errors; can be used to provide tactile support for any object/device, e.g., tape recorder buttons, key identification, etc.
- **keyguard** (Inclusive Technology, Mayer-Johnson) - flat board with cutouts for keys which sits on keyboard and provides more control for user; prevents unwanted choices; can be used to facilitate selection of choices, e.g., on a communication board
- **large print keyboard labels** – stick-on labels make letter/number/function keys more visible; upper case and lower case (with color-coded vowels) available; available in white on black (high contrast) or black on beige (to match keyboard); e.g., **Zoom Caps** - (Meeting the Challenge, Don Johnston); others with or without Braille dots (Independent Living Aids)

Mid Tech

Numeracy

- **calculator** – hand-held, some with printout capability (education, office & vision supply)
  - **oversized calculator** (Dollar Store) - large number display and keys
  - **talking calculator –** (Attainment) - large number display calculator with speech output
  - **graphing calculator –** for students to check their predictions
  - **Dana** (AlphaSmart) – includes an on-screen calculator
- **Homework Wiz or Speaking Homework Wiz** (Franklin) – to look up math vocabulary words
- **tape recorder** – if student has difficulty with handwriting, one can record
- , math facts, (e.g., multiplication rap), combinations, formulas, etc.
- **overhead projector –** for visual & interactive support;
- **opaque projector (Elmo) -** manipulatives can be projected onto screen
- **adapted measuring devices** - devices with speech output, large print display, or tactile output, e.g.,
  - **digital readout tape measure** (e.g., Digitize, Home Depot) - digital readout can be set to inches or inches & feet; converts to centimeters

- **Franklin Homework Wiz & Speaking Homework Wiz** (Franklin Electronic Publishers) - hand held dictionary/speller which includes arithmetic tutor and calculator; speaking version reads words/definitions
- **Coin-u-lator** (ParentBanc/Attainment) **–** buttons on the face of the device look like coins; LCD screen; allows for coin recognition, counting, & matching game, addition & subtraction; use in class/school store
- **Time Timer** (Generaction, Inc.) - visual depiction of elapsed time; 3", 8" & 12" sizes; students see a visual depiction of time remaining for a task in red as the clock counts down; no sound, e.g., ticking or stop buzzer; can be used to teach fractions
- **Roamer (**Valiant Technology – Dimensions in Learning, US dealer) – battery-powered device which can be programmed by buttons on the top to perform Geo-LOGO type functions, e.g., move forward, backward, turn, etc,; pens (and pen holders) may be purchased which go in the top of the Roamer and write as the Roamer moves; mats with large numbers are available to track Roamer's progress; PC computer interface available, as well
- **image enhancer -** dark line drawings (drawn with a pencil or china marker, photocopied, or printed out) on special paper are enhanced/raised to make them tactile, e.g., geometry problems, maps, etc.; essential for students who are blind **Swell Form Graphics Heating Machine** & **Swell Touch Paper** (American Thermoform Corp.) & **Tactile Image Enhancer** & **Flexi-Paper** (Repro-Tronics, Inc.)

High Tech

Numeracy

computer access (see also Physical and/or Cognitive Access Supports List)

- **text-to-speech -** for reading text on computer, a.k.a. e-text or electronic text)**;** text reading software will read any text file aloud; freeware/shareware programs are available, e.g., **Tex-Edit Plus(Mac)** and **Text Aloud (PC),** which offer optional highlighting of text as it is read; software such as **Write Out:LOUD** (WIN/Mac, Don Johnston), **IntelliTalk II** (WIN/Mac, IntelliTools), **CAST eReader** (CAST), **Kurzweil 3000** (Kurzweil Educational Systems), **Read & Write Gold** (TextHelp), and others have many more options; word speak feature available on **MicroSoft Word** (for Mac), **AppleWorks** (for Mac, Apple Computer)
- **word searches, crossword/math puzzles, mazes –** create and print from the web (www.Puzzlemaker.com)

math software **-** can support writing barriers by allowing students to complete work on the computer

- **Access to Math** (Mac only, Don Johnston) – teacher customized and/or program generated, printed or on-screen, talking worksheets; Gr. 1-8; auditory and visual supports; alternative input features: key equivalents; automatic navigation and Discover setups
- **Big:Calc** (Mac only, Don Johnston) large, on-screen, talking calculator; Gr. K-5; Access features: flexible auditory and visual reinforcements, versatile screen layouts; access customized single switch scanning; Ke:nx; touch screen
- **Blocks in Motion** (Mac only, Don Johnston) - creative activity program for sequencing skills, problem solving, logical and critical thinking, and exploration of concepts. Gr. K-8. Access features: mouse, key equivalents, single switch, alternative mouse, touch screen, Discover setups, Ke:nx.
- **MathPad** - Gr. K-2 & (IntelliTools) customizable electronic addition, subtraction, multiplication & division worksheets; access features: mouse, IntelliKeys, switches
- **Math Pad Plus**: Fractions & Decimals - Gr. 3-8 (IntelliTools) - customizable electronic addition, subtraction, multiplication & division using fractions and decimals; students manipulate problems on the screen; access features: mouse, IntelliKeys, switches
- **IntelliMathics** (IntelliTools) - open-ended software which uses on-screen manipulatives; teacher can create problem sets for students or use pre-made activities; addresses Venn diagrams, counting boxes, attribute blocks and geometric shapes, fraction bars, base Ten Blocks, Decimal grid, Geoboards & coins, dice, spinners for probability and game playing. Access features: mouse IntelliKeys, switches

- **Calculator Collection** (Edmark) – free desk accessory downloadable from www.Edmark.com; grades 3-6; 4 calculators include number facts, multiplication, pie chart or grid display of fractions, and money; converts fractions to decimals; see money as bills and coins
- **spreadsheets,** e.g., Excel (MicroSoft), TableTop Jr. & Sr. (TERC), AppleWorks (Apple Computer);
- **graphmakers,** e.g., The Graph Club (Tom Snyder)
- **timeliners,** e.g., TimeLiner (Tom Snyder)
- **Early Learning I, II, III, Suite** (MarbleSoft) **–** pre-K-3; 19 visual & auditory activity groups address early math & problem solving; access features: mouse, adapted alternatives, keyboard, single & multiple switch, scanning, speech output, IntelliKeys, TouchWindow, PowerPad, Ke:nx, and BigKeys
- **Number Concepts I, II** (IntelliTools) - fundamental math skills with multimedia reinforcement; **Level I** - K-2; counting, addition, subtraction, greater/less than; **II –** 3-5; skip counting, place value & factoring; access features; mouse, IntelliKeys, switches
- **Coin Critters** (Nordic Software - no longer in production; available through Half.com) - Ages 5-12; provides practice drills for counting and using U.S. currency; players correct answers are rewarded with arcade style game time

teacher resource software

- **math grids diskette** (Onion Mt. Technology) – variety of math grids on disk to print out
- **Graph Paper Printer - (**Phillipe Marquis, Metz, France, shareware, $20 to override limited usage) - prints graphs, music manuscripts and pattern papers; user defines size/color; Note: measurements are in metric

online math activities

- **Select Math (Supporting Engaged Learning by Enhancing Curriculum with Technology,** (Network in Regional Technology in Education Consortia) www.neirtec.org/activities/select.htm - offers links to a variety of sites with a wealth of interactive math activities across grade levels

  Examples:

  - **National Library of Virtual Manipulatives** http://matti.usu.edu/nlvm/nav/vlibrary.html

  A library of virtual manipulatives aligned with NCTM mathematics standards for grades PK-12 in the areas of number, algebra, geometry, measurement, and data & probability

  - **Project Interactivate** http://www.shodor.org/interactivate/

  Project Interactivate

  goals include the creation, collection, evaluation, and dissemination of java-based courseware for middle school mathematics explorations. "Interactivated" lessons, discussions, and activities

  - **Explore Math** http://www.exploremath.com/activities/index.cfm

  Interactive Applets and Activities that create real-time correlations between equations and graphs that help students visualize and experiment with many of the major concepts from Elementary Algebra through Pre-Calculus.

  - **NCTM Illuminations -- Mathlets** http://illuminations.nctm.org/mathlets/index.html

  Math•lets are math applets you can use to explore math and create interactive lessons. See our i-Math Investigations for examples of lessons that use Math•lets. (You can find some college-level mathlets in the Mathematical Association of America's online journal, JOMA.)
- **Puzzlemaker.com** – for making math vocabulary mazes (also crossword puzzles & word sentences)
- **The Resource Room,** www.resourceroom.net **-** Multisensory Teaching: Positive and Negative Integers - good activity for teaching positive and negative numbers using a thermometer
- **Teaching Mathematics With the Internet (K-6)** Classroom Connect) http://twi.classroom.com/math/k6/ - variety of links to sites, e.g., Dinosaur Number Hunt, Greater and Lesser Animals
- **Blue Web'n -** links to educational web sites, General Math Area is http://www.kn.pacbell.com/cgi-bin/listApps.pl?Mathematics&General/Other, Math Tutorials are at http://www.kn.pacbell.com/cgi-bin/listApps.pl?Mathematics&Tutorial

- **Steffen's Educational Resources** http://www.amphi.com/~psteffen/index.html**, the Math** links can be accessed directly by http://www.amphi.com/~psteffen/math.htm - wide variety of links to math activities

Tools & Strategies for Physical and/or Cognitive Access

Low Tech

Physical and/or Cognitive Access

- **vertical/slanted surfaces –** angle the writing surface for easier viewing or reaching; may allow access from varying positions (e.g., sitting, standing, kneeling)
  - **slant board** – triangular shaped surface placed on a flat surface to make it angled
  - **notebook** - turned sideways, sloping toward student
  - **easel** - table top or large standard easel; displays material in amore upright position
  - **book holder** – keeps book upright, opened to appropriate page; lucite version made to protect cookbooks protects the page by displaying it behind the lucite board
  - **chalkboard** – small, personal version or wall mounted board; use with fat chalk or regular size,
  - **wall –** tack papers on a wall; use varying sizes and types of paper, e.g. worksheets, mural paper, wallpaper
  - **velcro material** (P & A Sales) – used with spray mounting adhesive, it can be attached to portable boards, walls, or a variety of other surfaces; items can be attached to the material with velcro; material comes in many colors and can be cut without fraying
  - **felt board** – adhere felt to boards, walls, or other slanted surfaces; flat and folding flannel boards are available; items can be attached with velcro
  - **card holder** – small plastic or wooden strip with a notch or clip for holding flash cards, playing cards, pictures, etc. upright
- **tactile materials –** materials that provide sensory and kinesthetic feedback
  - **sand –** place sand in a shallow pan and allow students to trace letters, numbers etc. with their finger in sand
  - **finger paints -** trace letters, numbers etc. on paper with finger paint
  - **sandpaper –** cut out letters, numbers etc. for finger tracing; can be mounted on cards
  - **puff paints –** tubes of paint that dry as 3-D; write out letters, numbers etc. to be traced
  - **glue –** write out letters, numbers etc. to create a raised version to trace with finger; add glitter, sand, salt or any other material to create different textures
  - **Hi-Mark 2000 (3D Marker) -** plastic paste can be applied on paper, cloth, wood or metal; for clothing, canned goods, appliances, making maps tactile; can be washed
- **clipboard** - to hold papers for drawing, writing, etc.
- **non-slip pads** - keeps objects from slipping on table/wheelchair; ideas for use: between slantboard and table; on seat of wheelchair; under clipboard with writing paper (e.g., **Dycem** – Therapro; Contact brand **Rug Lock, Grip Liner** - grocery/variety stores)
- **rubber stamps & stamp pad** - for artwork or writing letters, numbers, name; for students with limited mobility it may be faster than writing
- **roller stamps** (TheraPro) - to create patterns/artwork, roll stamps in ink then on paper or other surface
- **finger grip ruler** – regular ruler with ridge in the center to grasp easier and keep fingers out of the way while drawing a line
- **highlighters –** use in place of pen/pencil to indicate important information, to draw, etc.; there are a variety of types:
  - **markers –** individual colored pens of varying thicknesses
  - **tapes –** thin highlighter tape comes on rolls (similar to regular tape) and can be unrolled and cut to any length to cover words, sentences etc.; is removeable and reusable

- **tabs –** individual colored translucent tabs; place removeable and reusable tabs next to or over important info, use to mark a page etc.
- **velcro –** secures items in place
- **adapted scissors –** scissors that are configured for different physical needs
  - **electric scissors** – battery powered scissors; scissor blades open and close rapidly when turned on; switch adapted version available from AbleNet
  - **loop scissors** - pliable plastic handle in the shape of a loop rather than finger holes; blunt tip
  - **Fiskars** - for use by either hand, blunt tip
  - **children's scissors** - for small hands, right or left handed versions available, rounded tip
  - **OLO™ Rolling Scissors** – eliminates the cutting motion by just holding the handle and rolling along line to be cut; for right or left hand
  - **Squizzers** - child-sized with short blades, easy to use
- **built up handles –** use foam pipe insulation from the hardware to add thickness to handles of paint brushes, foam brushes, crayons, markers etc.; slip _ inch sewing elastic through pipe insulation and tie, then wrap elastic around the back of the hand to hold handle in the student's palm
- **Universal cuff** (TheraPro) - holds crayons, markers, paint brush, utensils, toothbrush, etc.
- **page turners –** materials used to make pages easier to turn; ideas: clothes pins clipped to pages; sponges glued to page separate pages from each other; paper clips on pages used with magnetic wand
- **enhanced controls –** build up or replace existing switches on commercial battery-powered games
- **Ergo Rest** (Keyboard Alternatives and Vision Solutions Inc.) – arm support for drawing, painting, and keyboarding
- **keyguard** - flat surface mounted over the keyboard with cutouts for the individual keys; user can rest their hands on the surface and access the keys using their finger or other pointing implement (e.g., eraser end of pencil); helps prevent accidental selection of keys due to dragging or leaning on keyboard; keyboard labels may be useful to make keys more visible; specialized keyguards are also available for many alternative keyboards (e.g., IntelliKeys, BigKeys)
- **large print keyboard labels** – stick-on labels make letter/number/function keys more visible; upper case and lower case (with color-coded vowels) available; available in white on black (high contrast) or black on beige (to match keyboard); e.g., **Zoom Caps** - (Don Johnston)
- **adaptive devices –** specially designed equipment to serve a particular function and help to compensate for physical challenges; often available from specialty catalogs but some also can be in retail stores
  - **eating/drinking** - foam handles; plates with deep sides; cup with cut out rim
  - **dressing** – buttonhook; elastic/spiral shoe laces; velcro in place of buttons, etc.
  - **hygiene** – adapted toothbrush; raised toilet seat, etc.
  - **cooking** - spoons with big grips, etc.
  - **sporting equipment** - lighted bell ball, Velcro mitt, etc.

Mid Tech

Physical and/or Cognitive Access

- **switches -** translates a physical action into a machine readable signal; allows activation of battery operated or electric items
  - **Jelly Bean** (AbleNet)
  - **Specs** (AbleNet)
  - **Big Red** (AbleNet)
  - **String** (AbleNet)
  - **Buddy Button** (Tash)
  - **Microlite** (Tash)
  - **Cap** (Tash)
  - **Grasp** (Tash)
  - **Cup** (Tash)
  - **Leaf** (Tash)
  - **Pillow** (Tash)
  - **tape recorder foot pedel** (Radio Shack)

- **switch accessories -** items that allow the switches to operate different devices or expand the application of the switch
- **battery adapters/interrupters** (Tash, AbleNet) - switch jack plugs into one end of this cord, while the copper disk on other end is placed between battery and its contact; required for all corded switches used with battery operated items
- **battery switch interface** – battery interrupter and switch plug into this unit to allow for different types of activation; optional for use with corded switches and battery operated items; e.g., **Switch, Latch and Timer** (AbleNet)
- **cordless switches and receivers** – certain switches use infrared technology and can be used with compatible receivers (separate ones used for electronic and electric devices); e.g., **Cordless Switch and Receiver** (AbleNet)
- **electrical switch interface** – unit that links a switch to electrical toys/devices; allows for variations in types of switch activation: direct (item is active as long as the switch is being depressed); latched (each hit of the switch toggles item on/off); or timed (each switch hit activates item for pre-set time before turning it off); required for all corded switches used with electrical items; e.g., **PowerLink 3 Control Unit** (AbleNet)
- **switch interface** – connects the switch to the computer for operating switch software; e.g., **Switch Interface Pro** (Don Johnston Inc.)

  mounting device (Tash, AbleNet) - attach to wheelchair or table for easier access to switches, AAC devices or other device
- **switch operated devices -** these items can be operated using a switch for students with significant physical or cognitive challenges who are unable to use the typical controls
  - **Slide Projector Control Adapter** - switch control of slide projectors
  - **All-Turn-It Spinner** (AbleNet) – touch of a button or switch spins the dial and the spinner randomly points to one of 6 targets on the overlay; comes with number and dice overlays; optional overlay creation kit provides blank write-on/wipe-off overlays to make any targets
  - **Scissors –** see adapted scissors above

High Tech

Physical and/or Cognitive Access

accessibilityy features built into Mac/PC

- **Easy Access** (Mac) - available in control panels or on Utility CDs (provided with computer); functions include: allowing user to use sequential key strokes rather than simultaneous (e.g., shift and a letter for capital); slows or stops the repeat function of keys; using the keyboard to control mouse/cursor movement; etc.
- **Accessibility Options** (Win) – available in control panels; functions include: allowing user to use sequential key strokes rather than simultaneous (e.g., shift and a letter for capital); slows or stops the repeat function of keys; using the keyboard to control mouse/cursor movement; etc.

alternative computer access tools

(computer input options; some may require an additional interface to connect to the computer)

- **switches -** see above
- **joystick** – an alternative to mouse control for the computer; stick control is pushed forward, right, left, or pulled back to control on-screen cursor; must be able to move the stick, track the cursor on-screen, and click a button on the joystick base to select an item; some use an ”+” shaped frame to help control the stick movement, and others allow movement at any angle; e.g., Penny & Giles

- **trackball –** alternative to mouse control for the computer; user rolls a mounted ball (using open hand, fingers) to control the on-screen cursor; must be able to move the ball, track the cursor on-screen, and click a button on the trackball base to select an item; e.g., Penny & Giles
- **mouth stick** – long stick held in the mouth and with a rubber tip on the end for touching targets; can be used for paper based materials or for typing/computer control
- **head mouse and Head Master Plus** (see "high tech")
- **Touch Window** (Edmark) – student touches the screen (mounted over the monitor screen) to operate the computer
- **Big Keys** (Greystone Digital) – black text on large (1") color keys; ABC or QWERTY format
- **My First Keyboard** (Kidtech) **-** ABC order and large colored keys make typing easier
- **IntelliKeys** (IntelliTools) – 8.5" x 14" touch membrane keyboard; used in conjunction with other IntelliTools software, this keyboard can be used with picture and text targets in any configuration or size as well; keyguards also available
- **Discover Switch** (Mac/Win) (Don Johnston) – switch with on-screen keyboards accessed via scanning; 40 ready-to-use keyboards and software for creating customized boards are provided
- **Kid Desk** (Edmark) - computer security program; allows teacher to customize the desktop for easier student access to specific files, and to prevent their access to teacher files
- **Click-it!** (Mac/Win) (IntelliTools, Inc.) **–** software that allows the creation of "hot spots" in most computer programs so the student can access via touching the Touch Window or overlay (alternative keyboard), or scanning (with a switch)
- **HeadMouse** (Origin Instruments) – replace the standard mouse for students who cannot use their hands
- **HeadMaster Plus** (Origin Instruments) - head control of computer, user can write with on-screen keyboard
- **voice recognition software –** allows student to speak commands rather than typing them using the keyboard or mouse; for specific cases of extreme physical limitation (and rarely for learning disabilities); e.g., **Naturally Speaking** (Dragon Systems)
- **Biggy** (Mac/Win) (R.J. Cooper) **–** control panel that allows you to enlarge the cursor and change it's look; easier to follow on-screen

Tools and Strategies for Reading and Decoding

Skills:

reading mechanics | decode | interpret drawings | use research tools

No Tech

Reading and Decoding

- **strategic reading -** teach students to look for particular information, e.g., review title/chapter headings, locate main ideas, etc.
- **reduction –** reduce the amount of reading required
- **time -** adjust allotted time for assignment
- **physical/verbal -** enhance meaning of reading with gestures, exaggerated facial expressions and intonation during group reading
- **choral reading –** students read together
- **peer tutor -** or adult, to support or read to student
- **finger tap for syllable counting –** kinesthetic and auditory reinforcement
- **discuss drawings** – draw student's attention to the illustrations, show how it relates to the text; locate of specific vocabulary within the illustrations
- **reading preview** – focus on vocabulary development, story line, background information, etc.
- **student interests –** use sports, games, characters etc. as reading material
- **high interest/low reading level -** locate books that are easy to read but interesting to facilitate fluency in reading and motivation

Low Tech

Reading and Decoding

- **word walls -** to reinforce frequently used words and topic/story vocabulary; create on blackboard, whiteboard, or cards posted on walls**;** words may be grouped together by category and color-coded
- **word rings** - another way to reinforce topic/story vocabulary by putting text, drawn/cut-out/scanned pictures/drawings, story characters, Picture Communication symbols, etc. on oaktag cards; then create rings with the cards using binder rings, shower curtain rings, pipe cleaners or yarn
- **word dice** – words written on each side of a cube (i.e. made from milk cartons) for sight word development, vocabulary, synonyms etc.
- **highlighting and highlighter tape –** removable transparent highlighter tape, highlighters, etc.; identify target vocabulary words within a larger field of text
- **post-its** - to cover (delete) sounds or to add letters and change the word
- **clear post-its** - put over text and use highlighters on top; for diagramming sentences in Project Read, put symbols on clear post-it to avoid damaging text/book
- **magnifying glass, word windows, mini-flashlight** - for visual tracking of words/letters
- **Reading Helper** (Specialty Press, Inc.) - 6 3/4" X 1 1/4" plastic strip with a 1/4" transparent, yellow highlighting strip running the length of it; use for visual tracking of words/letters
- **Scrabble/letter tiles** – to arrange into words for writing, reading
- **magnetic word sets** – to create sentences, poems, etc.
- **magnetic printer paper -** to create magnetized letters, words, graphics, etc. (office supply)

- **stickies, index cards, sentence strips, etc.** - segment components of stories/words, so they can be physically manipulated e.g., sequencing parts of stories, manipulating word families, etc.
- **adaptive surfaces –** support reading materials for optimal access (e.g. slant boards, easels, non-slip padding)
- **modify worksheets** – simplify format; reduce amount of text; reword in simplified language
- **enlarge print materials** – on photocopier
- **word searches and crossword puzzles –** increase motivation **(**www.Puzzlemaker.com)
- **colored acetate filters** – laid over text, these can make a tremendous difference for students who have Scotopic Sensitivity Syndrome (SSS - a sensitivity to light which affects depth perception); especially helpful for students with autism/Asperger's Syndrome, e.g., **Transparency Pockets** (office supply stores) or filter kit from ***See It Right*** which includes multi-colored sets & instructions (See It Right); **special colored glasses** - may be necessary for some students with severe SSS
- **colored paper** - photocopy reading passages, vocabulary cards/lists onto different colors of paper to accommodate for different levels of visual acuity and contrast to increase readability
- **5 W question cards** - create cards with questions, e.g., "Does this answer <u>who</u>…..? with a sumbol of a person or people; cut out a rectangle and glue colored plastic wrap or acetate on the back; student puts colored cut out over a word which answers the question Who?
- **removable sticky arrows –** put arrow in section of text where answer will be found
- **graphic organizers** – to preview/review story narrative, vocabulary, characterization, etc.; e.g., concept maps, Venn Diagrams, story boards, sequence grids, & webs (place topic in center circle, brainstormed related ideas branch out from the topic and can later be grouped into clusters; pictures/symbols can also be used as templates, e.g., spider, tree, flower, etc.)

<u>enhance/adapt/modify books</u>

- **objects and actions -** to enhance meaning of text or specific vocabulary; toys or other objects and role playing can provide cues to meanings of words
- **cut apart and remake books -** use graphics without text, for student to "tell" the story from the pictures
- **make props** – copy book and cut graphics out; velcro to the pages the book so the book becomes interactive (e.g., students can match characters/objects to the picture in the book, choose the correct picture when asked by teacher, do interactive worksheets, etc.
- **simplify text -** paste over original text associated to allow student to read independently
- **add line drawings –** add line drawings over text so student "reads" via the symbols
- **clear drawings/photos -** which correspond to text or relate to content

- **Story Grammar Marker** (Discourse Skills Productions, Inc.) – to preview/review story narrative and support reading of text; this interactive, tactile tool made of yarn, bead, and objects is used to represent narrative structure; students each use smaller versions of the Markers to work along with the teacher; aids in organization/recall; also a terrific tool for problem-solving & solving disputes; different versions for older versus younger students
- **colored pens -** for note-taking**,** to differentiate vocabulary, types of information, sections etc. or to highlight after the fact

Mid Tech

Reading and Decoding

- **mini flashlight** - to support visual tracking while reading (electronics/office supply, department stores)
- **tape record text** – for students to hear/review story content or to read along with text
- **books on tape –** to preview content/sequence of story/text (library, audiotape purchase or rental stores, Recordings for the Blind and Dyslexic)
- **video taped versions of stories** – to motivate, make story come alive, and to preview/review story content

- **card reader/recorder** – electronic device which speaks aloud text written on a card**;** provides auditory feedback to support vocabulary/math skills, **Let's Go Activity Pak - Say It!,** includes **Can-Do** recorder (Ablenet)
- **hand-held talking dictionary/speller –** e.g., **Franklin Homework Wiz & Speaking Homework Wiz,** dictionary/thesaurus; spell check; create personal word list; words appear on small screen; target words, definitions, & synonyms can be pronounced aloud if speaking version; offers practice in cursive and print handwriting; arithmetic tutor & calculator; **Speaking Language Master, Special Edition** a more sophisticated device which can be customized for different learning disabilities and has adjustable speech speed; ideal for blind users; an extra large screen is provided for visually impaired students (these and other versions available from Franklin Electronic Publishers)
- **songs -** teach students original or other songs, then use overhead device with song lyrics on the overlays; students read as a group; students take turns tracking the words with a pointer
- **alternative keyboard** - large, accessible touch membrane board offers a choice of keyboard overlays plus a variety of commercial and teacher-made overlays, allow students to "write" on the computer by pressing letters/pictures/words, includes speech output, e.g., **IntelliKeys** (IntelliTools) or **Discover:Board** (Don Johnston)

High Tech

Reading and Decoding

- **PowerPoint slide show -** create slides of words for word identification; set the timing at a pace appropriate for the student and increase the time as s/he improves the rate.
- **multimedia software** - adapt/modify books by, e.g., using story graphics alone on slides to "tell" the story, putting graphics and text together on slides, rewriting text at lower grade level, adding symbols/rebuses to replace text or to enhance text, etc. e.g., **PowerPoint** (MicroSoft)**, IntelliPics** (IntelliTools), **HyperStudio (**Knowledge Adventure), **Kid Pix Studio Deluxe** (Broderbund)
- **symbol/rebus software** – to enhance or replace text, e.g., **BoardMaker** (Mayer Johnson – uses Mayer Johnson Picture Communication Symbols); **Writing With Symbols** (Don Johnson **-** Mayer Johnson symbols); **Picture It & PixWriter** (Slater Software – rebus/pictures)
- **Picture This** – CD collection of photographic images to support language/reading (Mayer Johnson)
- **screen colors -** change the colors on Microsoft Word or PowerPoint to suit the needs of the user, e.g., dark colors on a bright background
- **graphic organizers** – to preview/review story narrative, vocabulary, characterization, etc. (see low tech), e.g., **Inspiration** (K-12) **& Kidspiration** (K-3, talking feature, TouchWindow access) (Inspiration Inc.) software**;** decreases frustration for students who cannot draw/write neatly; can transform a web/map to outline format with one keystroke
- **gaphic enhancement of text** - software which uses pictures or symbols and/or words to support reading of text; can be used to rewrite text or alongside text, e.g.,
- **text-to-speech -** for reading text on computer, a.k.a. e-text or electronic text)**;** text reading software will read any text file aloud; freeware/shareware programs are available, e.g., **Tex-Edit Plus(Mac)** and **Text Aloud (PC),** which offer optional highlighting of text as it is read; software such as **Write Out:LOUD** (WIN/Mac, Don Johnston), **IntelliTalk II** (WIN/Mac, IntelliTools), **CAST eReader** (CAST), **Kurzweil 3000** ((Kurzweil Educational Systems), **Read & Write Gold (**TextHelp), and others have many more options; word speak feature available on **MicroSoft Word** (for Mac), **AppleWorks** (for Mac, Apple Computer)
- **word searches, crossword/math puzzles, mazes –** create and print from the web (www.Puzzlemaker.com)

additional software that supports diverse learners
phonetic/phonemic software

- **Balanced Literacy** (IntelliTools) - grade 1 skills; reading program using onset/rime approach; songs are used; includes access features; comes w/ small individual books; mouse, IntelliKeys or switch accessible
- **Earobics, Step 1** (Cognitive Concepts) - auditory development and phonics program; listening skills; ages 4-7
- **Earobics, Step 2** (Cognitive Concepts) - auditory development and phonics program; ages 7-10
- **Earobics, Step 1 for Adolescents & Adults** (Cognitive Concepts) - same as Earobics Step 1 & 2 but with more adult graphics
- **Edmark Reading Series** (Edmark) – e.g., Bailey's Book House; grades pre-K-2; reading readiness activities, optional accessibility features (Edmark)
- **First Words, First Verbs, First Categories, My Town, My House, Sentence Master, etc.** (Laureate Learning Systems, Inc.) – introductory language/reading programs; switch/Touch Window accessible
- **Living Books** (Broderbund) – grades pre-K-3; interactive mouse-controlled stories, e.g., **Just Grandma & Me**, **Stella Luna, etc.;** overlays available for IntelliKeys keyboard (IntelliTools)
- **Phonics Based Reading, Software for the Beginning Reader** (Lexia Learning Systems) - primary/elementary; Orton-Gillingham approach; self-paced individualized practice; motivating graphics/games; assumes sound/symbol correspondence; requires teacher to teach concept first; students cannot move to next level until skills are mastered; student tracking system with print-outs; **note**: does not read the word after letters are combined
- **Read 180** (Scholastic/Vanderbilt University) - reading software program designed for middle school students who are having difficulty reading; uses video to motivate and to provide a baseline of story content/sequence
- **Reading SOS, Strategies for the Older Students** (Lexia Learning Systems) - middle/high - same format as Phonics Based Reading; Orton Gillingham approach; graphics are more appropriate for older students; includes more advanced skills, e.g., prefixes/suffixes
- **Sentence Master** (Laureate Learning Systems) - ages 5 and up; animated software designed for problem readers; focuses on 150 commonly used "non-content" words; switch/TouchWindow accessible
- **Simon Sounds It Out** (Mac only, Don Johnston) - phonics instruction and practice (word families); grades 1-3
- **Simon Spells,** (Mac only, Don Johnston) - self-paced individualized instruction and independent practice; grades 1-2
- **Teach Me Phonemics #1 Initial Sounds & #2 Final Sounds** (SoftTouch) - pictures morph into Mayer Johnson black & white picture symbols; text appears on screen; switch and IntelliKeys accessible
- **Ultimate Phonics** (WIN only, Ultimate Phonics) - K - adult; self-paced individualized practice; teaches sound/symbol correspondence; no control for accuracy; students can move to next level at any time; once letters are combined, words can be spoken aloud (potential for cheating); could be used as part of the work board for guided reading; graphics are not very motivating which could be a problem for some students

rebus/symbol software

- **Picture It** (Slater Software) - ages 4 - adult; typed text is translated into text with color or B & W rebus symbols on one command; use to replace/adapt text in books to support reading; make other activities; 3,700 pictures; can import pictures, e.g., Mayer Johnson symbols/photos
- **PixReader** (Slater Software) - ages 4 - adult; speaks the text created in Picture It
- **PixWriter** (Slater Software) **-** ages 4 - adult; pictures appear above the words as the student types; words are spoken aloud; customized set-ups can be created
- **Writing With Symbols** (WIN only, Don Johnston) - Mayer Johnson Picture Communication Symbols appear above the words as the student types; read by letters/words/sentences; 2,000 pictures; ages 4 - adult

reading fluency, comprehension and study skills

- **Assess, Individual Reading Test** (Lexia Learning Systems) www.lexialearning.com for demo
www.lexialearning.com for demo
- **enhance text with definitions and explanations of text** - to enhance understanding of content; see enhanced literature texts on the web at **Project INTERSECT INternet Texts with Electronic Resources, Supportive Enhancements and Comprehension Tools** (http://cate.uoregon.edu)
- **Start-to-Finish Books (**Don Johnston) - high interest/low reading level software; interest level from grades 3–12; 2 reading levels available: grades 2-3 and 3-4; iterature-based programs for increasing reading fluency and comprehension; each title includes CD, audiocassette, and paperback book; text-to-speech feature allows stories to be read aloud; *multiple series of 3 books under headings such as*: Classic Literature, Famous Short Stories, Mysteries, Sports, U.S. History; pricing depends upon configuration, i.e., number of CDs, books and cassettes

Note: Start-to-Finish dictionaries can be loaded into Co:Writer for writing projects

- **study strategies using graphic organizers -** for organization, note-taking, reading, writing, remembering, & representing, **Computer Based Study Strategies Outreach Project (CBSS)** (http://cate.uoregon.edu)
- **WiggleWorks** (Scholastic) - K-2; literacy program; access features; students read/write/speak/record; comes w/ small books

writing

- **see text-to-speech software above**
- **Co:Writer** (Don Johnston) Mac/WIN CD, typing a letter brings up a list of words to choose from;, selection is by number, thus limiting key strokes; works with any word processor, including those with text-to-speech; dictionaries can be customized; Start-to-Finish Books' dictionaries can be dumped into Co:Writer;

Tools & Strategies for Student Self-Management

***Skills*:**

attention turn taking cooperation staying on topic waiting

No Tech

Student Self-Management

- **physical cues** - use touch, proximity, eye contact, pointing to gain student's attention
- **sign** - use manual sign to facilitate attention to the speaker
- **gestures** - associate specific gestures with rules (e.g., one finger = wait)
- **dramatization** - exaggerate expressions, intonations and gestures to enhance meaning
- **verbal reminders** – periodically restate the topic, focus or goal of activity
- **pre-cue** – verbally remind student "you're going to be next"
- **choral response** – students answer in unison rather than individually
- **group size** – decrease group size to minimize wait between turns; increase group size to provide more models for students to follow
- **delegate steps –** assign individual steps of the activity to multiple students to facilitate cooperation
- **clear work area** - reduce amount of visual distractions
- **interesting content** - incorporate students' interests as examples (e.g., sports, fashion, games, collectibles)

Low-Tech

Student Self-Management

- **flashlight or light pointer** - to draw attention to information, location, people etc.
- **timer** (kitchen or hourglass) – visually designate how much time an activity will take, how much time to wait, or how much time is left in an activity; creates an objective means of "when" – it's non-negotiable
- **colors** – use sparkly material, metallics, neons or color wheel opposites to draw attention to visuals
- **sticky notes** – mark important or relevant information to reduce time spent searching
- **colored cups** – use different colored cups or other materials to signal for help, finished, working etc. rather than speaking out (e.g., green cup on desk means "I'm working", yellow means "I'm ready", red means "I need help")
- **posters** – post class rules, jobs, computer use guidelines, schedule, etc.; use words and/or pictures to enhance understanding and quick recognition
- **personal supports –** create a duplicate of classroom materials for individual student to use to follow along
- **name tags** – to identify student roles when working as a team on an activity
- **clothes pin can** – for turn taking, write names of students on clothes pins, attach to edge of a coffee can, and their pin is dropped inside the can when their turn is over
- **object turn marker** – an object (stick, ball, other item) is held by the person whose turn it is; visually marks who should be speaking or participating

High-Tech

Student Self-Management

- **social stories** - can alleviate anxiety about activities/tasks (write/draw or create on computer a storybook describing the steps of any activity, academic or nonacademic, to allow the student to preview and be prepared for what is to come; a comic strip format can be very effective (see Contributors, Carol Gray)
- **monitor** - change font size or style; alter screen colors and contrast between text and screen

Tools and Strategies for Technology Management

Technology Management (Hardware/Physical Set-Up)

- **electrical outlet -** make sure there is an outlet close the computer
- **computer positioning** - turn computer away from the class to prevent distraction; turn towards class to monitor student's work
- **room divider –** screens or other furniture that blocks the computer from view for privacy, reduced distraction
- **minimize glare** - purchase a glare screen or tape cardboard on monitor top/sides to screen out glare from windows/lights
- **headphones** - contain speaker noise; provide "Y" splitters to link additional headphones
- **physical positioning** – 90 degree angle at elbows, hips, knees and ankles; eyes level with monitor
- **gel rest** - for wrists and for the mouse pad to prevent strain
- **distance monitor -** place a table in front of the computer monitor for additional space when it is being used by multiple students
- **post instructions –** write down (and/or draw) instructions for connecting peripherals and post near computer
- **assign peripherals -** assign different peripherals (i.e. **Touch Window, IntelliKeys**) to different computers
- **page holder –** holds work vertical for easier viewing ; **Page Up** is very compact

Technology Management (Troubleshooting & Preventing Trouble)

- **backups -** prepare overheads as a backup for presentations, in case the computer or software fails
- **placement** - don't put the computer near heat vents or chalkboards; dust/chalk is bad; white board is preferable
- **dust covers & mini computer vacuum cleaners -** to clean the keyboard; computers may not be opened; it voids the warranty
- **clean hands -** reduces dirt accumulation on and in the keyboard
- **alcohol-based cleaner** - to clean the computer, e.g., Handiwipe, not liquid cleaner)
- **no drinks** – discourage drinking near computer; they'll recover from minor water spills, but not tonics and other sticky drinks
- **personal disks -** provide disks for individual students and protect them in plastic covers and boxes
- **handle carefully** – store properly and don't leave disks lying around; do not hold them by the metal piece or place near magnets
- **text-to-speech activation –** turn on speech option before task requiring speech output, e.g. Word Speak (MicroSoft Word) or AppleWorks Apple Computer, or other specific talking word processor
- **post directions** - for hardware & software use and maintenance
- **backup** - save work periodically to disk, zip disk
- **test cables –** make sure connects are secure and program is working prior to starting
- **trouble-shooting checklist** - list potential problems, e.g., 1. Is it plugged in? 2. All cables tightly fastened? etc.
- **problem log –** keep written record of problems for Tech Support person, e.g., "Got error message # 45, tried A, B, & C, etc.

Technology Management (Printer Management)

- **check connections -** make sure printer is plugged in and all cables are tightly fastened
- **overnight printing –** print large files at the end of the day or overnight to not tie up the printer
- **print in grayscale –** save ink by setting printer to print with on draft or grayscale for b/w copies
- **post strategies & tips** – post guidelines for: how and when to print (e.g., print 1st and final drafts only); directions for printing, reminders (e.g., do print preview before printing)
- **one document limit** – students select one document to print per computer session to save ink and paper

Technology Management (Instructional) - Scheduling & Organizational Issues

- **visual schedule** - create a visual schedule for student use, and make it very visible, so that students can see their turn is coming up
- **timer** - use a timer (student controlled if possible), e.g. Time Timer (Generaction)
- **name checklist** - have a student checklist for computer use, check when done
- **turn markers** – label a marker (i.e. clothespin) with each student's name, which they move to a designated spot (i.e. from the edge of the coffee can, drop it in) after taking their turn
- **rules** - establish, post, enforce computer rules/procedures/etiquette, including cleanliness; set clear expectations and consequences
- anticipate need for additional Computer Lab or Library time
- **peer pairs -** ask the computer teacher which students are really good at the skills and use them for support of other students; pair students with complementary skills, ensuring that each student is challenged, engaged and learning; tell students, "Ask 3 students before you ask me."
- **rotating stations** – computer is one of activity stations that students rotate through
- **overhead backups -** prepare overheads as a backup - for presentations, in case the computer or software fails
- **post directions** - make step-by-step directions for paraprofessionals/volunteers with student objectives on the back
- **avoid redundancy** - find out what the computer teacher has already taught to avoid repeating instructions
- **computer as a tool** - do not use computer time as a reward, instead as a learning tool!
- **assign tasks –** assign roles/responsibilities to students, e.g., turning computer on/off, installing software, demonstrating, training
- **set clear goals –** clearly identify goals for the lesson
- **reinforcement** – provide rewards for completed work
- **break down** - if using written directions, break them down into sections
- **"computer tutor"** - teacher trains one student on a piece of software, the student wears the Computer Tutor sign & instructs another student, then that student then becomes the Computer Tutor

Technology Management (Instructional) - Software Management Issues

- **quick guides** - a single sheet with simplified directions for use of a particular software program
- **Technology Helpers** - using **PowerPoint** slides & **ClarisWorks** drawing feature, together with the screen capture feature of Mac/PC, Boston teachers Paula Pickett and Dorene Odom **create Flip Books** which are set up near the computer; slides are created showing how to find the application, open it, & use it, with bright colored arrows drawn on the slide to direct the student's attention; good idea for adults too; also, slides can illustrate the steps of a lesson plan for literacy using graphics and text, e.g., picture of an author's web site, picture of a completed Inspiration or Kid Pix activity, etc.
- **color code keys** – add colored stickers to indicate software commands or for emphasis (i.e. shift key, delete key, etc.)

- **graphic icons –** create realistic looking icons using screen shots for software/file names for easy, independent access by students
- **work exemplars –** keep copies of student's work year to year as model what the product should look like
- **templates** - wherever possible - to support teacher productivity and student ease of learning (these can be created in Word/AppleWorks)
- **the following is the hierarchy of difficulty of BPS standard LINC software from easiest to use to most difficult to use:**
- Kid Pix, 2) ClarisWorks, 3) Power Point, & 4) HyperStudio
- **graphic organizers** – e.g., **Inspiration** (K-12) **& Kidspiration** (K-3) (Inspiration Inc.) good for group contributions, brainstorming, creating order from ideas

Technology Management (Instructional) - Accessibility Issues for Diverse Learners

- **accessibility features** - check for software accessibility features to customize for students with different learning needs: alternative inputs methods (i.e. TouchWindow, alternative keyboard etc.); mouse speed; amount of material presented at one time
- **create macros** - to open up to desired application/file
- **text-to-speech feature on software**? - check to see if there is and activate it before a lesson for students who need speech output, e.g., **Word Speak** on **Word** (Office '98 for Mac) or **ClarisWorks/Appleworks** (Mac) or other talking word processors

Technology Management (Instructional) - General Tips for Conducting Lessons

- **pretest** – find out what students know first
- **computer teacher/classroom teacher collaboration** - computer teacher gives out a monthly survey regarding classroom lessons
- **peer pairs -** ask the computer teacher which students are good at the skills & use them for support of other students; pair students with complementary skills, ensuring that each student is challenged, engaged and learning; tell students, "Ask 3 students before you ask me."; team students with assigned roles, e.g., Captain manages team's work and evaluates the team, Keyboarder types the info, and Author tells the keyboarder what to write
- **"Did I?" sheets** - students check off what they've done; Inspiration/Kidspiration software are good for this (Inspiration, Inc.)
- **HyperStudio software** - nice drawing tool for middle school, can input into ClarisWorks/AppleWorks (Apple Computer)
- **rubrics** – students create matrix of performance standards; possibly add graphics; post on the wall
- **Inspiration/Kidspiration software**
  - **use in outline or graphic mode** - to record information for research projects
  - **recreate a story on a web** - take home for homework
  - **prewriting activities** - use draw mode to brainstorm/list ideas, then switch to outline mode to write

Technology Management (Instructional) - Large, Ongoing Projects

- **schedule** - create a tight schedule
- **inventory** - make a list of print/non-print materials available
- **organize the topic and tie it to standards**
- **CD ROMs/disks -** gather ahead of time for projects
- **logic exercises** – conduct these activities that tie to the project
- **group** - divide students into groups**,** know your students and account for students with differing learning needs; pair ESL student with someone who speaks their language; different groups can work on different parts of the project

- **models** – clearly display products/expectations
- **task analysis** - break tasks down into steps
- **benchmarks -** develop criteria for success and assess them along the way
- **choices** – offer to let students make decisions about who works on what
- **color-coded folders** - for groups; label with group name & include tasks/goals/pencils/paper/diskslabel
- **support -** request support from knowledgeable colleagues or specialists as needed, i.e., ESL, special education, etc.; survey parents to get input from them; look for other adults to volunteer to help
- **be clear about the goals** - this is especially important for diverse learners
- **prerequisite skills –** know what skills are required for the task**,** match to students accordingly
- **computer desktop folders** - have separate folder for groups
- **web page selection software** - use to download pages from web sites, allowing you to select only the critical pages which you want students to access; his provides a stored copy of the original pages which can be viewed and navigated locally with any web browser. e.g., **Web Whacker** (Blue Squirrel)
- **post clearly** - what is to be done at home/at school
- **have on computer and off computer activities** - for classroom management
- **use creative strategies** - to keep things moving and to keep students on task
- **be realistic** – accurately judge what can be accomplished in the planning time you have
- **keep it enjoyable** - make sure students feel successful and that everyone is enjoying the process!

Technology Management – 1 Computer (Large Monitor and/or Internet Access)

- **large monitor or projection system** - allow for large group or small group demonstrations; young students can sit on floor
- **make it interactive -** students take turns answering and/or coming up to type in info
- **preview web sites -** make sure they have appropriate content and are useful for the topic
- **web page selection software** - (see Large Ongoing Projects)
- **web tour web sites** - create a web tour (a limited research path) for students to follow, e.g., Web Quest web site is http://edweb.sdsu.edu/webquest/webquest.html
- **peer mentoring/ support/editing -** students may know a lot more than you do!

Technology Management –2-5 Computers in a Classroom

- **post applications** – list which software titles are loaded on each computer
- position computers so that you can see to monitor student work
- **designate tasks** – assign specific tasks to specific computers (i.e. one scans disks for viruses, one for extended printing tasks, one for each peripheral, such as scanner, IntelliKeys keyboard, switch, etc.)
- **designate subjects** – assign specific subject areas to specific computers (i.e. word processing, art, math, etc.) to avoid congestion at the printer or overwhelming specific Web sites
- **school support** – request support from knowledgeable colleagues or specialist as needed (i.e. ESL, special education)
- **work space** – designate location for working on parts of activities which do not require the computer
- **consistent computer** - assign students to the same computer every time to facilitate file management
- **log** - put a book on top of the computer for students to sign in and out, indicate programs they are using etc.

Technology Management - Computer Lab

- **give out a monthly survey to teachers** (if in computer lab) - to find out the lessons they're doing
- **cup signals** – invert 3 cups on top of the monitor (use block or film container to secure monitor); student chooses cup color displayed based on how they're doing: red = I need help; green = I'm working; yellow = I'm ready (i.e. in a groups "Show me you're on the same screen I am by putting up your yellow cup.")
- **color-coded folders** - label with names, task, goals for specific groups, e.g., 1st period, 2nd period, etc.

Tools & Strategies for Visual Access (Low Vision to Blind)

Please note: The local Vision Resources Library will provide books and materials in large print for school age children on Federal Quota. It will also provide on quota Talking Typer software and the Braille 'N Speak Scholar portable Braille input computer with training. Both are through the American Printing House for the Blind (APH). The Massachusetts Commission for the Blind provides technology for home use for adults (over 16). There must be a clear need for something in the home.

No Tech

Visual Access

- **positioning** of student - move closer to board; check desk/chair height
- **structure** - anticipate needs for activities and try to plan ahead
- **environment -** make sure the layout is consistent, organized, and predictable

Low Tech

Visual Access

- **lighting** – critical feature; darkened hallways aren't good; put floor/table lamps in the classroom so a student can pull one over to her/his desk; adjust lighting location, angle, contrast and glare to student needs; natural light is best; avoid fluorescent lighting; use light filters if needed
- **glare shield** – use cardboard, manila folders, etc. to reduce glare on materials/tools
- **polarized or tinted eyeglass lenses** – might help some students (see an eye care specialist)
- **marking/highlighting work materials –** for ease of access
  - **colored highlighter and note tape** – put vertically on left side of a page to encourage visual tracking from left to right (office supply or LoTTIE Kit)
  - **markers** - common items such as rubber bands, buttons, etc. can be used as markers to identify location, e.g., starting and ending points on the page
- **tactually enhanced objects/materials**
  - **tactile graphic paper** – water-based marker makes lines swell, e.g., **Quick-Draw Paper** (APH)
  - **raised line maps** – e.g., **U.S. Puzzle Map** (APH)
  - **tactile letters** – **sandpaper, puff paints, glitter, glue, Hot Glue, Hi-Mark 2000, Wikki Stix, etc. –** for tracing, for practice in letter formation, and for kinesthetic feedback (artist supply, hardware, Therapro)
  - **enhanced line paper** – commercial raised line paper or adapt your own paper by printing lines in a color, then laminate the paper and glue over the lines to enhance them, e.g., **Right-Line Paper** – Wide Rule or STOP-GO red/green (Therapro)
  - **variety of tactile writing surfaces –** e.g., sandpaper, screen, etc.
- **"writing" letters in sand, finger paints, salt, beans, etc.** – to practice letter formation; provides kinesthetic feedback
- **dry erase board or small chalkboard**– write and erase surface for writing in large print with wipe-off markers/chalk and erasers; e.g., **Contact Brand white *Memoboard* paper** (office/educational/art supply)
- **plastic writing guides** – keeps pen/pencil within a limited rectangular space (LoTTIE Kit)
- **stencils/templates, tracing paper** – to serve as guides for practice
- **highlighters for tracing** – student can trace directly over black line model
- **enlarge paper-based materials on a photocopier** – copy on 8.5" X 14" paper or 11" X 17" or **write in large print**

- **line and spot magnifiers –** highlight the desired line of text, e.g., dome-shaped **Visual Tracking Magnifier** (Optelec) which highlights 1 line of text or **Bar Magnifier** (Bausch & Lomb) which lies flat; highlights 2 lines of text
- **magnifiers** – inexpensive plastic sheets, hand held or stand-up, are widely available but may distort images; good quality versions are available as well (Optelec, Independent Living Aids)
- **slate and stylus –** manual Braille writing device, punch holes with stylus; requires special embossable paper, e.g., **Brailon**
- **Plastic Braille Paper –** a plastic-like paper developed specially for use with thermoform machines and Braillers, e.g., **Brailon** (APH)
- **abacus** – for kinesthetic support for math (educational supply/toy stores)
- **20/20 pen** – special point provides bold, easy to read writing; black ink provides high contrast against light colored backgrounds (vision supply)
- **using color**
- **white board vs. black board –** some students prefer white background; can also vary marker color
- **colored acetate filters laid over text** – can make a tremendous difference for students who have Scotopic Sensitivity Syndrome (SSS – a sensitivity to light which affects depth perception); especially helpful for students with autism/Asperger's Syndrome,e.g.,
  Transparency Pockets (office supply stores) or filter kit from ***See It Right*** which includes multi-colored sets & instructions (See It Right); **special colored glasses** – may be necessary for some students with severe SSS
- **large print books –** available from American Printing House for the Blind
- **reading stand –** desktop stand may assist viewing of written material, e.g., **PageUp** (MTM)
- s**hape of word –** outline words to support early reading through shape identification
- **magnifiers**: available at some office supplies,
- **peer readers** – to read aloud to student
- **signature writing guide** – grid/guide to place over space for signature (APH)
- **enlarged graph paper –** purchase large grid graph paper or enlarge on photocopier for math
- **large print/Braille math table** – grid of multiplication tables 1-9, e.g., **Multiplication and Division Table** (APH)

Mid Tech

Visual Access

- **talking books on cassette** - are readily available; don't forget the library!
- **hand-held digital recorder** - to record assignments, etc. (electronic/office supply)
- **Odyssey Talking Tactile Globe** (Independent Living Aids) **–** globe with typographical features enhanced; no political boundaries; facts about countries, governments, etc. provided by speech through touch control (AccessAbility, Independent Living Aids)
- **Odyssey II Interactive Globe and Atlas** (AccessAbility, Independent Living Aids) - same as Talking Tactile Globe above without the tactile overlay; can be tactually marked using High Marks or Braille tape
- **large print calculator** - (vision supply)
- **talking calculator** - speaks key inputs and totals (APH, vision/electronic supply)
- **talking scientific calculator for blind & visually impaired** – small, affordable, lightweight, with earphones; natural speech for keys and display; over 95 scientific functions, including statistics & trigonometry, e.g., **Orion TI-34 Talking Scientific Calculator** (Orbit Research/APH)

- **hand-held talking dictionary/speller –** e.g., **Franklin Homework Wiz & Speaking Homework Wiz,** dictionary/thesaurus; spell check; words appear on small screen; target words, definitions, & synonyms can be pronounced aloud if speaking version; offers practice in cursive and print handwriting with animated on-screen guide; arithmetic tutor & calculator; **Speaking Language Master, Special Edition** a more sophisticated device which can be customized for different learning disabilities and has adjustable speech speed; ideal for blind users; an extra large screen is provided for visually impaired students (these and other versions available from Franklin Electronic Publishers)
- **talking portable note taker** - portable word processor which speaks text as it is typed, e.g., **Type 'N Speak** (Blazie/Freedom Scientific)
- **Braille machine -** makes teaching aids and Braille copies from a single master. e.g., **EZ-Form** (American Thermoform); requires embossable paper, e.g., **Brailon Plastic Braille Paper** (APH)
- **embossable mapmaker** - enlarged forming area lends itself to maps, signs, graphs, charts and teaching aid production; can also be used to create Braille, e.g., **MaxiForm Machine** (American Thermoform)
- **Braille labels** - can be cut to size and will adhere by pressing onto any smooth surface of plastic, metal or painted wood; use for book titles, labeling shelves, and identifying objects, e.g., **Braillabels** (American Thermoform)
- **labeling materials for use in Braille embosser** - made of plastic with an adhesive backing, e.g., **Embossables** (American Thermoform)
- **reading machines** – stand-alone devices which scan text and convert it to speech, e.g., Aladdin Ambassadoer & Reading Edge (Telesensory), **Kurzweil 1000** (Kurzweil Educational Systems)
- **CCTV (Closed Circuit Television)** - a stand-mounted (or hand-held) video camera projects a magnified image onto a video monitor or TV screen; use to enlarge images of classroom materials, e.g., worksheets, textbooks, literature, or even the blackboard; available in B & W or color (**ClearView**, Optelec), (**Aladdin Rainbow,** Telesensory) and other manufacturers
- **Thermo Pen I & II** – lines/drawings are enlarged when pen is used on specialized image enhancing paper (see image enhancer) (Repro-Tronics)
- **lighted pen -** battery-operated; has light at the tip to support visual tracking while writing, e.g., Nitewriter (Electro-Optix, office supply, LoTTIE Kit)
- **mini flashlight** - to support visual tracking while reading (electronics/office supply, department stores)

High Tech

Visual Access

- **avoid glare** - move monitor away from windows, or pull shades down & turn on lights; purchase computer **anti-glare screen**
- l**arge monitor -** 17" minimum; easier to track than image enlarging software, especially for young users
- **large print keytop labels**, **e.g., Zoomcaps** (Meeting the Challenge or Don Johnston) and **Large Print Labels** (Hoolean) - upper case keyboard labels that make letter/number/function keys more visible; available in white on black (for high contrast) or black on beige (to match the keyboard) (Hoolean offers some added color choices and Large Print with Braille enhancement)
- **font size -** adjust for student font size preference in control panels (for Finder/menu items) or in the word processor
- **bold print -** may be preferable to regular print for reading word processing
- **cursor enlargement software, e.g.** - software which has optional large, colorful and/or animated cursors; programs are available on freeware/shareware web sites as well, e.g., **Biggy** (R.J. Cooper)
- **screen magnifiers for computers** - inexpensive plastic magnifiers are widely available; special computer magnifiers can be purchased; distortion around edges is an issue; make sure students will use the device; older students, in particular, do not want to look different, e.g., **Compulenz** (Florida New Concepts Marketing)**; Computer Screen Magnifier** (Optelec); **Zoomview** (APH)

- **alternative large key keyboard -** for physical/visual/cognitive issues or young children**,** e.g., **Big Keys Keyboard** (Mac/PC, ABC or QWERTY order, Greystone Digital) or **My First Keyboard** (PC, ABC order, KidTech)
- **full-featured alternative keyboard** - large, accessible touch membrane board offers a choice of keyboard overlays plus a wide variety of commercial and teacher-made overlays; allows students to "write" on the computer by pressing letters/pictures/words, includes speech output, e.g., **IntelliKeys** (IntelliTools) or **Discover:Board** (Don Johnston)
- **Braille overlays for the IntelliKeys standard overlays** – allows for access by Braille users, **IntelliTactiles Standard Overlay Companions** (APH), **Braille Overlays for IntelliKeys** (R.J. Cooper)
- **image enlarging software,** e.g., **ZoomText Xtra** has screen reading component as well); **Magic** (works with JAWS for speech output); enlarge all images on the computer and offer choice of magnification; Macs and PCs offer utilities which will enlarge text, but they tend to be difficult to maneuver on the screen
- **image enhancer** – dark line drawings (drawn with pencil or china marker, photocopied, or printed out) on special paper are enhanced/raised to make them tactile, e.g., geometry problems, maps, etc., **Swell Form Graphics Heating Machine** and **Swell Touch Paper** (American Thermoform Corp.) & **Tactile Image Enhancer** and **Flexi-Paper** (Repro-Tronics, Inc.); **tip –** passing drawing/diagram through the device twice improves the raised lines; put the least "busy" edge of paper in first to avoid having paper get stuck
- **tips for teaching touch typing –** place a piece of paper a couple of inches above hands so students don't look down; use any talking word processor and an old fashioned typing book; make sure students sit at proper height, elbows are level with keyboard and wrists are straight (not arched)
- **typing program for blind users** - e.g., **Talking Typer** – (American Printing House for the Blind - available on quota)
- **graph paper -** enlarged and colored grids on disk (see Resources - Onion Mountain Technology)
- **text-to-speech software -** for reading electronic text (e-text); text reading software will read any text file aloud; freeware/shareware programs, e.g., **Tex-Edit Plus(Mac)** and **Text Aloud (PC),** offer optional highlighting of text as it is read; software such as **Write Out:LOUD** (WIN/Mac, Don Johnston), **IntelliTalk II** (WIN/Mac, IntelliTools), **Kurzweil 3000** (Kurzweil Educational Systems), **Read and Write Gold (**TextHelp), and others have many more options
- **e-text/electronic text** - text which is in digitized form and can be spoken aloud by computer (see Resources)
- **screen reading Software** - **JAWS** (Job Access with Speech) software (WIN - Freedom Scientific) is a screen reader for students with severe vision; reads all text on the screen; **ZoomText Xtra** (WIN/DOS - AI Squared) has screen reading feature also**; outSPOKEN for Mac** (Alva Access Group); **tip –** when learning screen reading software**,** cover the monitor so you won't cheat and use the mouse
- **Internet** – to access banking, shopping, news entertainment, schedules, etc.
- **Braille 'n Speak -** personal digital assistant (PDA); allows you to input Braille and get output through synthetic speech; small, portable and runs on rechargeable batteries; **Scholar** version is available on quota through the American Printing House for the Blind (APH); **Braille Lite Milennium** has tactile Braille display and other added features; **tip –** print out the "Help" file to support use; guide for Braille Scholar is available (APH); Braille 'N Speak curriculum manual is a good way to learn to use the device; it must be purchased separately (Blazie/Freedom Scientific)
- **Braille printer/embosser –** for printing out Braille from computer e.g., **VersaPoint** or **Versapoint Duo** (Freedom Scientific) Duo allows for double-sided printing; requires Braille printer paper (APH)**Braille translation software** – type or scan in text then software translates text to Braille for printing out Braille materials on Braille printer, e.g., **Duxbury Braille Translation**
- **book reading devices -** scan any print materials (including graphics), then read them aloud, e.g., **OPENBook** (WIN, Freedom Scientific) and **Kurzweil 1000** (Kurzweil Educational Systems) **regular text printer –** for printing materials in text for sighted readers, e.g., the regular classroom teacher

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- **Robinson**, **Judy** Teacher, Learning Disabilities, Wheatley Middle School, Boston Public Schools, (Reading)
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Resources

- **ABC Stuff: Resources for Reading**

Phone: 800-278-7323
www.abcstuff.com/
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- **AbleNet, Inc.**

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Vision consulting and products

- **Advanced Multimedia Devices, Inc.**

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Augmentative communication and electronic devices

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Augmentative communication devices

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Phone: 408-252-9400
www.alphasmart.com
Portable word processors

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800-223-1839
www.aph.org
Products for low vision/blind

- **American Thermoform Corporation**

800-331-3676
www.atcbrleqp.com
Tactile products for vision

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Phone: 800-692-7753
www.apple.com
Online Assistive Tech info

- **Assistive Technology, Inc.**

Phone: 617-641-9000
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Supports for learning, commumication, & access

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www.bluesquirrel.com
Web Whacker software

- **Boston College – The Eagle Eyes Project**

617-552-8424
www.cs.bc.edu/eagleeye/ Eagle Eyes
eye gaze input

- **CAST**

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www.cast.org
eReader and universal design research

- **Center for Advanced Technology in Education**

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cate.uoregon.edu
Project Intersect and CBSS

- **Cognitive Concepts, Inc.**

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- **Crystal Springs Books**

Phone: 800-321-0401
www.crystalsprings.com
Highlighter tape

- **Discount School Supply**

www.discountschoolsupply.com

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Phone: 888-228-9746
www.speechpaths.com/OnlineStore/ProductPavilion/discourse/sgm-price.htm
Story Grammar Marker

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www.Dotolearn.com

- **Do-A-Dot Art!**

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www.doadotart.com

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www.duxburysystems.com
Duxbury Braille Translation software

- **DynaVox**

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- **Orbit Research**

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Image enhancing products

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www.rjcooper.com Range of AT tools software

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Educational Technology Department, Web Quest
http://edweb.sdsu.edu/webquest/webquest.html

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- **See It Right!**

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Colored acetate filters& training to support students with visual perceptual problems.

- **Select Math (Supporting Engaged Learning by Enhancing Curriculum with Technology,** (Network in Regional Technology in Education Consortia)

www.neirtec.org/activities/select.htm
Links to web sites for online manipulatives/activities

- **Shareware**

shareware.cnet.com/

- **Silver Lining Multimedia, Inc.**

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Time Timer elapsed time clock

- **Greystone Digital**

Phone: 704-875-3293
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Big Keys

- **Gutenberg Project**

www.promo.net/pg/history.html
Data base of etext

- **Hammett's**

www.hammetts.com
Educational Supply

- **Hooleon Corporation**

Phone: 520-634-7515
www.hooleon.com
Large print/Braille key labels

- **Howbrite Solutions, Inc.**

Phone: 1-800-505-6284
www.howbrite.com/mathline.HTM
Mathline

- **Knowledge Adventure**

Phone: 800-542-4240
http://www.hyperstudio.com/
HyperStudio

- **Kurzweil Educational Systems**

Phone: 899-894-5374
www.kurzweiledu.com
Kurzweil 3000 & Kurzweil 1000

- **I Can See Books**

Phone: 250-753-3093
www.icanseebooks.com

- **IBM**

www.ibm.com Online AT info

- **Independent Living Aids, Inc.**

Phone: 800-537-2118
www.independentliving.com/frame_magnifier.htm
Range of magnifiers & other talking, tactile devices, etc.

- **Inspiration Software, Inc.**

Phone: 503-297-3004
www.inspiration.com
Inspiration/Kidspiration

- **IntelliTools, Inc.**

Phone: 707-773-2000
www.intellitools.com
Adaptive tools and software.

- **Judy Lynn Software, Inc.**

Phone: 732-390-8845
www.castle.net/judylynn
Switch software for PC

- **Kidtech, Inc.**

Phone: 800-681-4056
www.kidtech.com
My First Keyboard

- **Keyboard Alternatives & Vision Solutions, Inc.**

Phone: 800-953-9262
www.keyalt.com
Magic screen magnification software

- **Laureate Learning Systems, Inc.**

Phone: 802-655-4755
www.LaureateLearning.com
Communication software

- **Learning Company**

Phone: 800-825-4420
www.learningcompanyschool.com
Living Books software

- **Learning Fundamentals**

Phone: 800-825-4420
www.learningfundamentals.com

- **Lee Products Company**

www.leeproducts.com
highlighter tape

- **Learning Resources - Toy Magic**

Phone: 800-423-0665
www.toymagic.com

- **Learning Toolbox**

Phone: 850-934-0037 www.edumart.com/learningtoolbox
Ten Row Counting Frame

- **Lexia Learning System, Inc.**

Phone: 781-259-8752
www.lexialearning.com
Lexia reading software

- **Marblesoft**

Phone: 763-755-1402
www.marblesoft.com
Early learning software

- **Maxi-Aids.**

Phone: 800-522-6294
www.MaxiAids.com
a 858-550-0084
www.mayer-johnson.com
Tools & software for language development

- **Meeting the Challenge, Inc.**

Phone: 719-444-0252
www.mtc-inc.com
Zoomcaps, large print keycaps

- **MTM Corp.**

Phone: 305-365-0186
www.mypageup.com/
PageUp page holder

- **New Concepts Marketing, Inc.**

Phone: 727-842-3231
gulfside.com/compulenz
Compulenz magnifier for monitor

- **Omnicor, Inc**.

Phone: 800-869-4554
www.wikkistix.com
Wikki Stix

- **Onion Mountain Technology**

Phone: 860-693-2683
http://www.onionmountaintech.com/catalog.pdf
LoTTIE Kit & AT consulting

- **Optelec U.S., Inc.**

Phone: 800-828-1056
www.optelec.com
Vision products, e.g., closed circuit TVs, etc.

- **Orbit Research**

Phone: 888-606-7248
www.orbitresearch.com
Orion TI-34 Talking Scientific Calculator

- **ORCCA Technology**

Phone: 859-226-9625
www.orcca.com
Variety of devices for physical control

- **P & A Sales**

Phone: 508-856-0744
Veltex fabric and velcro

- **Penny and Giles Computer Products**

www.penny-gilescp.co.uk c/o Don Johnston
Physical access products, e.g., joysticks

- **Pocket Full of Therapy**

Phone: 800-736-7124
www.pfot.com

- **Prentke Romich Co.**

Phone: 330-262-1984
www.prentrom.com
Augmentative communication & environmental controls

- **Pyramid Educational Consultants, Inc.**

Phone: 888-732-7462
www.pecs.com
PECS system

- **Recordings for the Blind & Dyslexic**

Phone: 609-452-0606
http://www.rfbd.org/
Educational library for those with print disabilities

- **Repro-Tronics, Inc.**

Phone: 800-948-8453
www.repro-tronics.com
Image enhancing products

- **RJ Cooper**

Phone: 800-752-6673
www.rjcooper.com Range of AT tools software

- **San Diego State University**

Educational Technology Department, Web Quest
http://edweb.sdsu.edu/webquest/webquest.html

- **Scansoft**

Phone: 978-977-2000
www.scansoft.com
Scanning software, OmniPage Pro & OmniForm, Dragon Naturally Speaking

- **Scholastic**

http://teacher.scholastic.com/read180/
http://teacher.scholastic.com/wiggleworks/
Read 180 literacy program with access features

- **See It Right!**

Phone: 909-481-2950
http://www.seeitright.com/
Colored acetate filters& training to support students with visual perceptual problems.

- **Select Math (Supporting Engaged Learning by Enhancing Curriculum with Technology,** (Network in Regional Technology in Education Consortia)

www.neirtec.org/activities/select.htm
Links to web sites for online manipulatives/activities

- **Shareware**

shareware.cnet.com/

- **Silver Lining Multimedia, Inc.**

Phone: 914-462-8714
www.silverliningmm.com
Picture This photo CD

- **Slater Software, Inc.**

Phone: 877-306-6968
www.slatersoftware.com
PixReader, PixWriter rebus software

- **SoftTouch/kidTECH**

Phone: 661-396-8676
www.funsoftware.com

- **Synergy**

Phone: 508-668-7424
Synergy Milennium - custom-designed laptop

- **Specialty Press, Inc.**

Phone: 800-233-9273
Reading Helper plastic, transparent, highlighting strip

- **Spencer Learning**

Phone: 858-455-9818
www.spencerlearning.com
Ultimate Phonics software

- **TASH International, Inc.**

Phone: 800-463-5685
www.tashinc.com
Variety of switches and devices for computer access

- **Telesensory Corporation**

Phone: 408-616-8700
www.telesensory.com/home.html
Vision products - CCTVs, etc.

- **TERC**

Phone: 617-349-3535
www.terc.edu
Tabletop Jr. and Sr. software

- **TextHELP!® Systems Ltd.**

Email: info@texthelp.com
www.texthelp.com
Text-to-speech & word prediction software

- **Therapro**

Phone: 800-257-5376
www.theraproducts.com
Variety of therapeutic tools and publications

- **Valiant Technology**

Phone: 888-366-6628
www.valiant-technology.com/usa/roamer1.htm
Dimensions in Learning is the USA distributor

- **Words+,Inc.**

Phone: 661-723-6523
www.words-plus.com Augmentative
Communication Systems

- **Zygo Industries, Inc.**

503-684-6006
www.zygo-usa.com Augmentative
Communication Systems
Variety of switches and devices for computer access