

Keeping it Simple

Low Tech Computer Access

Low-Tech or No-Tech Computer
Access Options

Presenters

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Computer Access Keyboard Aids

- LABELS

- Keys may be difficult to find as key labels are often in low-contrasting colors and not centered on each key. Commercially available keyboard labels such as Big Key Stickers and Keycaps are one way to compensate for this problem



Computer Access

Keyboard Aids

- **Hint:**

- Highlight certain Keys

- Many software programs require the use of just a few keys; these keys can be easier to find when highlighted with colored stickers, pieces of fuzzy Velcro, children's stick-on earrings or wikki stix.

- Re-label Keys

- Use ½" vinyl letters from an office supply store (remember though, they don't include labels for keyboard keys such as Spacebar, Enter/Return, etc.)

Computer Access Keyboard Aids



- Labels
 - Braille Keyboard Labels
- Keystopper Key Lockouts
 - Features
 - Completely disable a key, or
 - With "Soft" lockout you can make it harder to press it accidentally



Computer Access Keyboard Aids

- Keyboard Keytop Pullers



- Homerow Key Indicators

- Features

- Transparent raised bumps
- High-tack adhesive



Home-Row Key Indicators

Computer Access Keyboard Aids



- Keyboard Overlays or Skins
 - Molded keyboard covers that protect the keyboard
 - Clear plastic cover wraps around your keyboard
 - Vacuum formed or attached to the keyboard with Velcro

Computer Access

Keyboard Aids

- Keyguards
 - Keyguards, designed for individual keyboards, have finger-sized holes and fit securely over the keys. They are used to prevent accidental key presses by helping a student be more accurate in selecting the correct key. The student can slide her hand across the keyguard and then locate and depress a single key. They are most often made of plastic, but can be found in metal versions. Keyguards are available for most standard keyboards as well as alternate keyboards and Augmentative Communication devices.

Computer Access Keyboard Aids

- Several keyboard and communication device vendors provide keyguards for their products. A great resource for customized keyguards for any keyboard, augmentative communication device or even wheelchair trays is [Turning Point Technology](#).



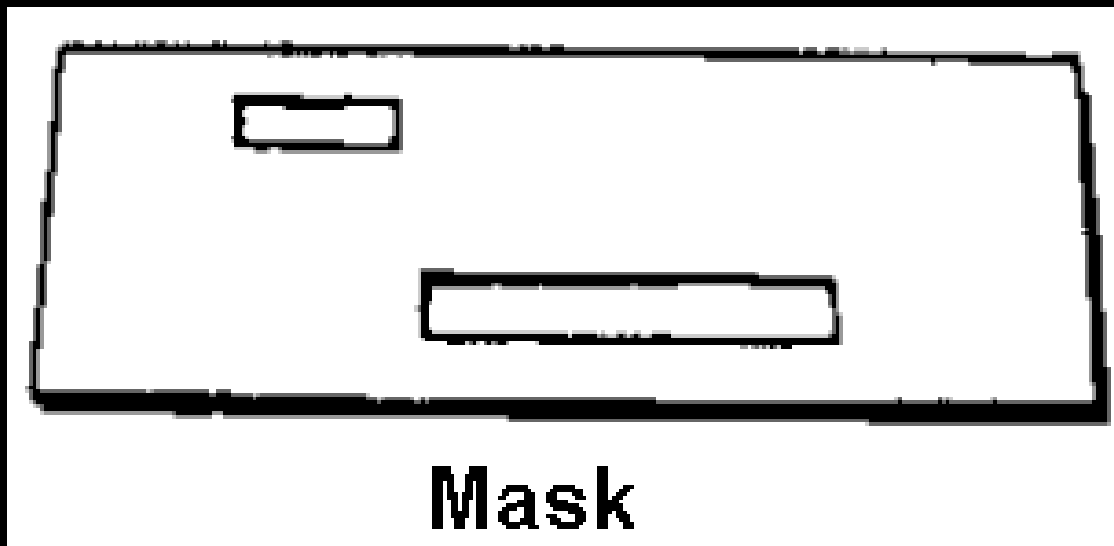
imac Keyguard



IntelliKeys Keyguard

Computer Access Keyboard Aids

- **Hint:** To customize a keyguard for a student, try using a heavy cardboard mask by itself or over a plastic keyguard. Design it with an Exacto knife to hide unnecessary keys, exposing only those needed for a software program or computer activity.



Computer Access

Typing Aids

- Many students can use a standard keyboard but, because of poor motor control, may be under constraints of typing with one hand, with only one or two fingers, with a head pointer, mouthstick or handstick. Designed for students with limited grasp, a typing aid slips on and off easily and tightens with a Velcro® strap. It has a rubber tip for non-slip touching of the keys.

Computer Aids

Typing Aids



Computer Access Document Holders



3M In-Line Document Holder



Page Up

- Frequently, a document's position affects a student's reading, comprehension and writing. A document holder helps students with disabilities position documentation so that it is easy to read.



Good Use Microdesk

Computer Access Document Holder

- **Hint:** Try this: Velcro a chip or memo clip to the side of the monitor. The clip is used to hold documents and the Velcro ensures that the clip is not permanently attached to the monitor.



Computer Access Furniture and Positioning

- How a student is positioned, or "fits" at the computer station can significantly affect the quality and quantity of interactions. Being appropriately supported allows the student to concentrate on the software program and not be distracted by maintaining balance and visual acuity. [Positioning Guidelines](#) for computer use are available. Technology supports such as adjustable height tables, adapted chairs and footrests help a student maintain a comfortable position.



Computer Access Furniture and Positioning

- Non-slip surface on chair or table to prevent slipping (e.g. Dycem)



Dycem Activity Anchorpad
Mobility Matters
www.mobilitymatters.com



Best Priced Products, Inc.
www.amazon.com

Computer Access Furniture and Positioning

- **Hint:** There are several alternatives to Dycem that are low cost and readily available at many dollar stores and retail stores such as Wal-Mart.
 - **Non-skid rug material**
 - **Shelf-lining material**
 - **All Purpose Gripper Pads**
 - **Non-Skid Safety Tape**

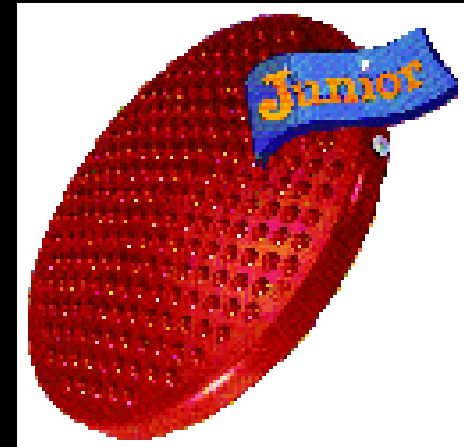


Computer Access Furniture and Positioning

- Flexibility in the positioning of keyboards, computer screens and table height is important
- Possible solutions:
 - Adjustable-height desks/tables
 - Adjustable keyboard tray
 - Wood blocks to raise the height of the table or desk
 - A cardboard box to raise the height of a keyboard on a table

Computer Access Furniture and Positioning

- **Footrests** ([Ergo Solutions, Ali-Med](#))
Footrests provide a secure base for a child--with feet flat and ankle and knee at 90 degrees. Cost: \$45 - \$55
- **Seat Cushions** ([Pocket Full of Therapy](#))
These products provide a variety of seating alternatives, all of which can be used safely and unobtrusively in a classroom or home setting.
 - **Pallone Ball Chair**
 - **Sit 'N' Fit Disc**
 - **Move 'N' Sit Wedge Seat Cushion**
 - **Bumpy Junior Disc Seat Cushion**
 - **Classroom Chair Seat Cushion**



Computer Access Furniture and Positioning

- **Hint:** You can also use a stabilized box, rolled towels, firm pillows, foam wedges/blocks, laundry baskets, bricks, cedar blocks, wooden blocks, phone books and anything else you can think of to achieve a supportive position!



Computer Access Slanted Keyboards

- Some students with limited hand and wrist flexibility find that when the keyboard is elevated, it is easier to use. Elevating the keyboard also positions it closer to the monitor. This lessens the need for the student to shift his gaze from the keyboard to the monitor. Some keyboards provide a slant bar for angled use. For example, the [IntelliKeys](#) keyboard can be elevated to 35°. Placing a book under the bar can further increase the angle. Slant boards can be created to elevate any keyboard to any degree.

Computer Access

Commercially Available Adjustable Keyboard Trays



Articulating Keyboard Arm
with Tray



Keyboard Stand with Forearm
Support



Adjustable Keyboard Tray

Computer Access Slanted Keyboards

- **Hint:**
 - A wedge made of foam or triwall can be created to any degree specifications. You can secure it with Velcro to the back of a keyboard for more stable use.
 - Metal bookends bent to any angle can provide a slanted surface for a keyboard. Velcro or non-slip materials help keep the keyboard in place.
 - Use a three-ring binder to angle the keyboard, again using Velcro, or non-slip materials to keep the keyboard in place. The thicker the notebook, greater the slant.

Computer Access Laptop Stand

- **Hint:**
 - Use a sturdy file sorter.
 - How to make your own: from www.instructables.com



How to Make Your Own: Laptop or Keyboard Stand

- **Step 1: Materials**
- 2x Flat Angle Bracket, Perforated, 100 * 100 * 100
- 2x Flat Angle Bracket, Perforated, 60 * 40 * 60
- 2x Flat Angle Bracket, Perforated, 40 * 40 * 200
- 1x Flat Bracket, Perforated, 60 * 200
- 6x Hex head bolt, zinc, M4*16
- 2x Wing head bolt, zinc, M4*10
- 6x Nut, zinc, M4
- 2x Knurled nut, zinc, M4
- 14x Washer, zinc, M4, dia.14mm
- 14x Felt pads about 15mm dia.
- 2x 7mm spanners.



How to Make Your Own: Laptop or Keyboard Stand

- **Step 2: Setting Up:** Lay the two long sections on the upside down laptop about where you want them and place the single flat section on top. Move them around until you get equal spacing and 2 holes lined up.

At this point it's a good idea to consider where the cooling vents on your laptop are, and avoid having elements obscuring them. Also a good idea to think about other things like connections and ports, and be sure your stand will not block these.



How to Make Your Own: Laptop or Keyboard Stand

- **Step 3: Start Screwing:** Place 2 bolts with washers on them pointing up on the desk and place one of the long sections over them, making sure to use the correct holes from my setting up.
- Put one of the two smaller angle sections on top, using one of the bolts from earlier. Loosely tighten a nut, with another washer, onto the 2 bolts. This helps keep things in place when adding another bolt to hold the other end of the angle. Do the same thing to the other side.



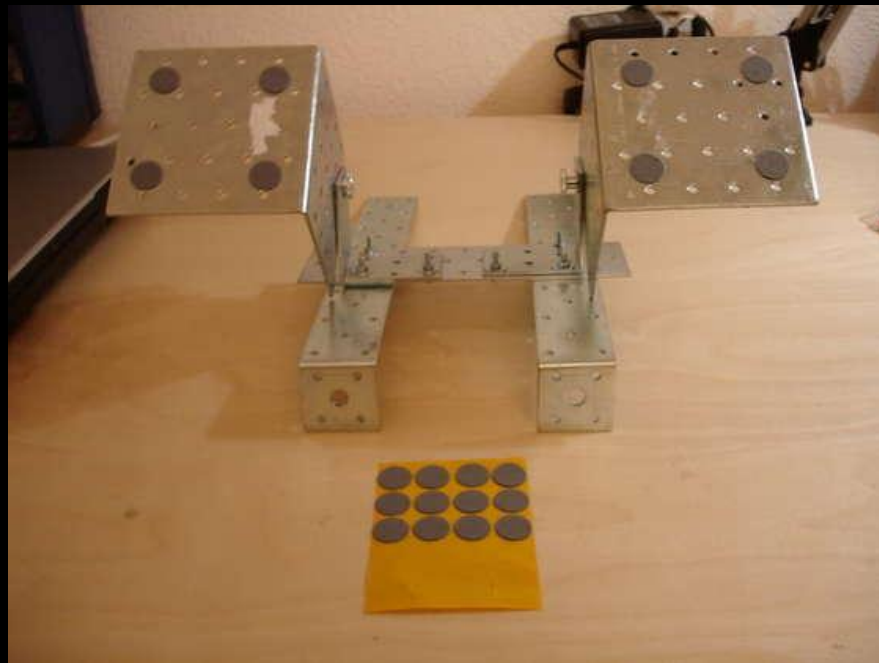
How to Make Your Own: Laptop or Keyboard Stand

- **Step 4a:** With the main support finished, add the two large angles which form the base. These are attached with the wing bolt and knurled nut, so allow a little hand adjustment.



How to Make Your Own: Laptop or Keyboard Stand

- **Step 5: Final Touches** Check the alignment of the parts and make some small adjustments to their positions to get everything straight and square. Add felt pads to the base, 4 on each side. Carefully put the laptop on to see where it touches the frame and put pads everywhere it touches, 6 places, 3 on each support.



How to Make Your Own: Laptop or Keyboard Stand

- **Finished Product**



Computer Access Furniture and Positioning

Examples

- **Idea Cart** ([Anthro](#))
This adjustable table changes height with the turn of a crank. It's ideal for classroom or lab use.
Cost: \$169- \$239
- **Tripp Trapp Chair** ([Therapro](#))
This chair's seat and footrest can be re-positioned. Both the seat and footrest adjust vertically and horizontally to comfortably accommodate children to adults. Hip belt, pads, pommel and tray also available/
Cost: \$199.95



Computer Access Furniture and Positioning

- **Hint:** Be sure to consider simple solutions to furniture access. For example, wood blocks or bricks can raise the height of a table, and a stabilized cardboard box can be used to raise the height of a keyboard on a table.



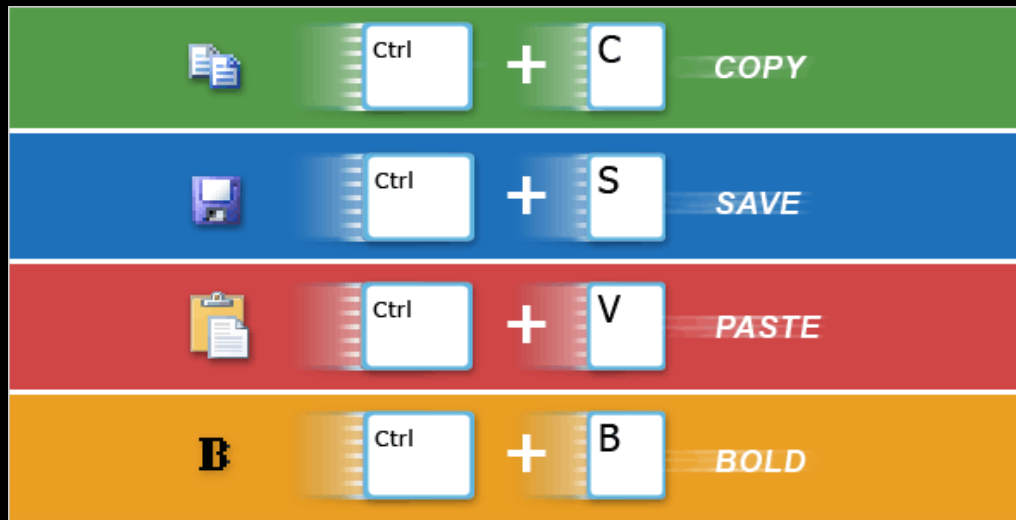
Computer Access

Keyboard Shortcut Resources

- Did you know that software programs provide keyboard commands that are shortcuts to menu items? They perform the same task as a menu command, such as print, save, and new file. Keyboard commands use a combination of alphanumeric characters together with the Control, Shift, or Alt/Command keys.
 - They are very helpful for students who are blind to navigate software and the Internet and for customization activities.
 - Keyboard commands make software more accessible to all students. Some people simply prefer using the keyboard instead of the mouse. For others who may have difficulty using the mouse, key commands offer an alternative control method.

Computer Access

Keyboard Shortcut Resources



- **Microsoft Windows** Contact this site to obtain the complete Windows Keyboard guide that covers shortcut keys throughout Windows, creating custom shortcut keys, and keyboard navigation in the Active Desktop, Help, and Internet Explorer. The file in this section is a copy of the Windows keyboard shortcuts.
<http://www.microsoft.com/enable/products/keyboard.aspx>
- **Macintosh Keyboard Equivalents** This site lists the keyboard shortcuts for standard commands.
<http://developer.apple.com/documentation/index.html>

Built-in Accessibility

- Accessibility Options have been built in to every version of Microsoft Windows since Windows 95.
- More accessibility options have been added to each subsequent version of Windows.
- Comparison across Window versions:
<http://www/Microsoft.com/enable/products/chartwindow.aspx>

MS Accessibility Options

Technology options built into your computer so it is:

- Easier to see
- Easier to hear
- Easier to use the mouse
- Easier to use the keyboard

www.microsoft.com/enable

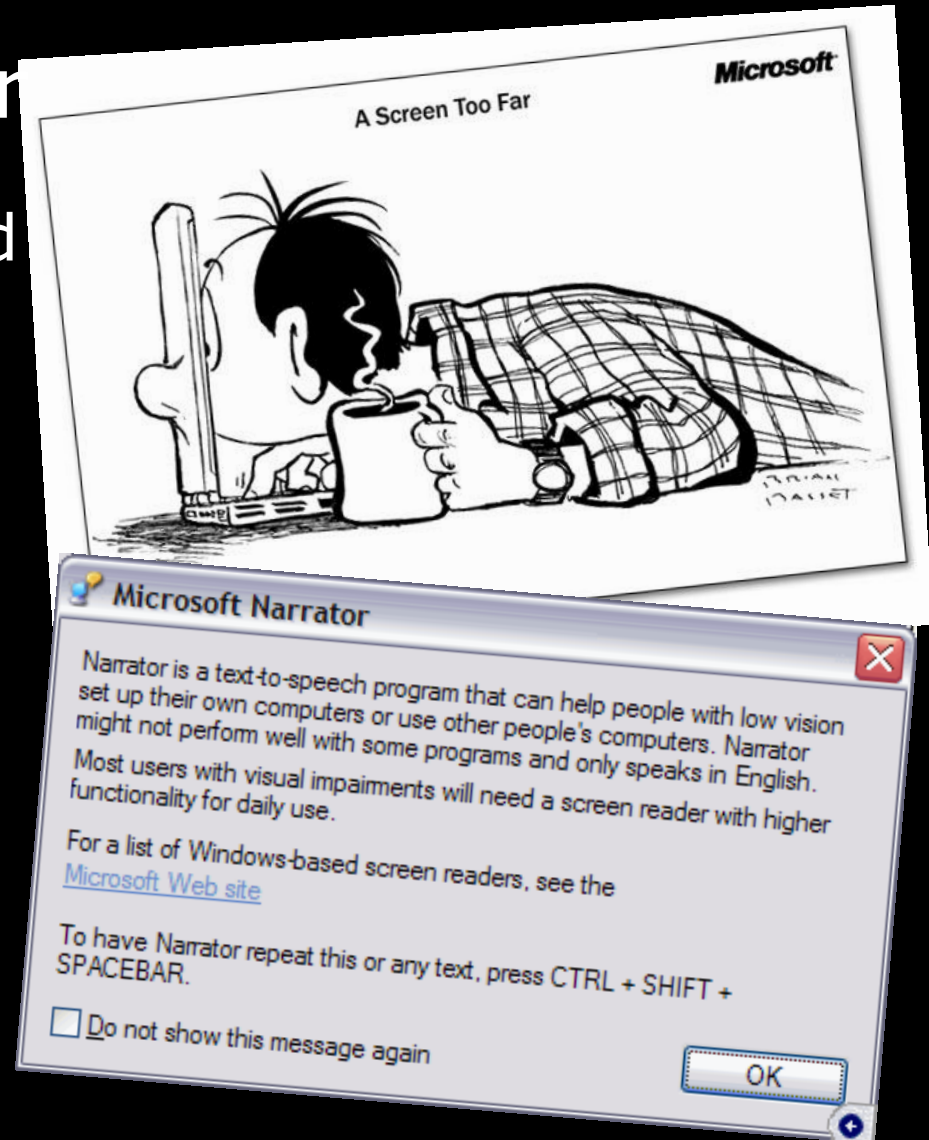
MS Accessibility Options

- ToggleKeys: Hear Tones When Pressing Certain Keys
- High Contrast: Choose a High Contrast Color
- Combination to Improve Screen Resolution
- Choose the Width and Blink Rate of the Cursor
- SerialKeys: Use an Alternative Input Device Instead of a Keyboard or Mouse
- Get Sound Notification When Turning a Feature On or Off

MS Accessibility Options

Microsoft Narrator

- Very basic screen reader that will read dialog boxes, and menus.
- Speaks only in English
- Click on:
 1. Start
 2. All Programs
 3. Accessories
 4. Accessibility
 5. Narrator



Free Screen Reader

<http://www.readplease.com>

- Reads any text you see on your screen
- All purpose text-to-speech software



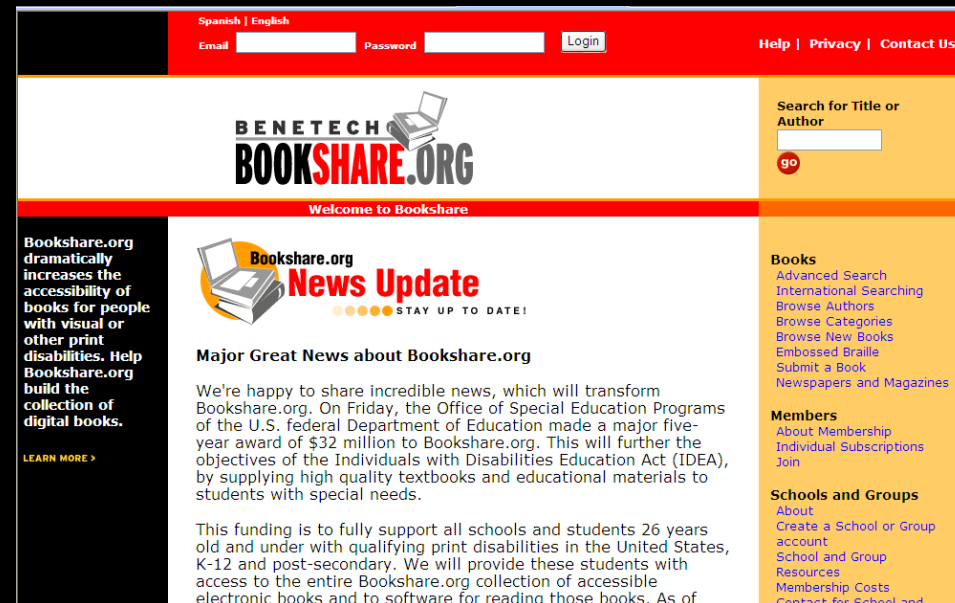
Digital Text Source

Use with Narrator or ReadPlease

Benetech's BookShare

<http://www.bookshare.org/>

- Free access (OSEP grant)
- Books online in digital text format
- Over 34,000 titles



The screenshot shows the homepage of BookShare.org. At the top, there is a navigation bar with language options (Spanish | English), login fields for Email and Password, and a Login button. Below this is a search bar for Title or Author with a go button. The main content area features the BookShare.org logo, a "Welcome to Bookshare" message, and a "News Update" section with a "STAY UP TO DATE!" indicator. The news update text reads: "Major Great News about Bookshare.org. We're happy to share incredible news, which will transform Bookshare.org. On Friday, the Office of Special Education Programs of the U.S. federal Department of Education made a major five-year award of \$32 million to Bookshare.org. This will further the objectives of the Individuals with Disabilities Education Act (IDEA), by supplying high quality textbooks and educational materials to students with special needs. This funding is to fully support all schools and students 26 years old and under with qualifying print disabilities in the United States, K-12 and post-secondary. We will provide these students with access to the entire Bookshare.org collection of accessible electronic books and to software for reading those books. As of". On the left side, there is a sidebar with the text: "Bookshare.org dramatically increases the accessibility of books for people with visual or other print disabilities. Help Bookshare.org build the collection of digital books." and a "LEARN MORE >" link. On the right side, there are sections for "Books" (Advanced Search, International Searching, Browse Authors, Browse Categories, Browse New Books, Embossed Braille, Submit a Book, Newspapers and Magazines), "Members" (About Membership, Individual Subscriptions, Join), and "Schools and Groups" (About, Create a School or Group account, School and Group Resources, Membership Costs, Contact for School and).

MS Accessibility Options

Cursors that can be enlarged or animated for better visibility:

- Change the width and blink rate of the cursor within MS Windows
Start → Control Panel → Accessibility Options → Accessibility Options → Display
- Rabe's Big-Cursors (Win 95/98/NT/ME/2000)
<http://rbx.de/big-cursors/>
- Anicursor- includes animated and left-handed cursors
<http://www.anicursor.com/special.html>
- Large & high contrast cursors for Windows
<http://joescursors.tripod.com/HVCurPg.htm>

MS Accessibility Options

Students who:

- Can't access a "regular" keyboard
may benefit from an onscreen keyboard
 - Start → All Programs → Accessories → Accessibility
→ On-screen Keyboard



Computer Access Keyboard Layouts

- It is important to consider the physical layout or organization of the keys when selecting alternate keyboards. The standard keyboard is designed with a "QWERTY" layout, modeled after the typewriter. This layout, however, may not be ideal for non-typists or young students and may not be the most efficient design for students with single side use.

Computer Access Keyboard Layouts



- **Alphabetical Keyboards**

- Some keyboards are available with an alphabetical layout design, which students just beginning to use the computer for writing may prefer. Often keyboards with an "ABC Layout" also have larger keys. This design reinforces and builds on the student's experience with the alphabet while making the keys easier to find. It emphasizes letter location, not efficiency.
- Examples: Big Keys Plus and IntelliKeys: also described under "Enlarged Keyboards."

Computer Access Keyboard Layouts Dvorak



Computer Access Keyboard Layouts

- **Dvorak**

- Several keyboards can be purchased with this keyboard layout. .
- Software utilities are available that provide the means to redesign the standard keyboard into a different layout.
- In all cases, the keyboard needs new key labels to identify the new key functions.

- **Dvorak Tutorial**

- If you are interested in learning to touch-type using the Dvorak keyboard layout in as little as 5 hours, a tutorial program, Master Mind Typing Tutor, is available at the [Dvorty Boards](#) site.

How to: Select a Dvorak Keyboard Layout

- 1) On the **Start** menu: Select **Control Panel**.
- 2) In **Control Panel**: Be sure you are in **Classic View** (all Control Panel icons are showing. If not, under **Control Panel** in the left pane, select **Switch to Classic View**).
 - 1) Select **Regional and Language Options**.

How to:

Select a Dvorak Keyboard Layout

- 3) In the **Regional and Language Options** dialog box, on the **Languages** tab:
 - 1) Select the **Details** button under **Text services and input languages**.
- 4) In the **Text Services and Input Languages** dialog box, under **Installed services**:
 - 1) Select the **Add** button.

How to:

Select a Dvorak Keyboard Layout

- 5) In the **Add Input Language** dialog box,
under **Keyboard layout/IME**:
 - 1) Select the keyboard layout you want.
 - 2) Select **OK** to close the dialog boxes

Computer Access

One Hand Typing

- One Handed Typing Manuals and Resources on CD
- The NORMALChildsize Keyboard - made for little fingers

Lil'BigBoard The Little Keyboard
with the Big Difference



Computer Access Enlarged Keyboards

- CLEARVIEW
KEYBOARD FOR PC

- Features

- large, bold print on the keys
- A vinyl skin to protect the keyboard from spills



- KEYS-U-SEE LARGE
PRINT KEYBOARD

- Features

- Three high-contrast color schemes



Computer Access

Enlarged Keyboards and Keys

- MYBOARD III
 - Features
 - Keys are double the size of regular keys
 - Color-coded keys
- VISIKEY WIRED ENHANCED VISIBILITY KEYBOARD
 - Features
 - Letters 430 percent larger than on a standard keyboard
 - 15 hot keys that enable one touch access to multimedia and Internet functions. The keyboard includes PS/2 and USB connections



Computer Access

Enlarged Keyboards and Keys

• INTELLIKEYS

– Features

- Comes with six standard overlays that are ready to use with any word processing program or software that requires a keyboard
- Change the way IntelliKeys looks and functions by simply sliding in a different overlay.
- Each of the standard overlays has a bar code that is instantly recognized by IntelliKeys, so no previous "set up" is necessary.



• BIG KEYS PLUS

– Features

- 1-inch square keys, (4X bigger than standard keys!)
- Comes in both the alphabetical layout and the standard QWERTY format.
- Either format can be ordered with multi-colored or white keys.



Computer Access

Ergonomic Keyboards

- Ergonomic keyboards ensure safe and comfortable computer use by providing additional supports to prevent repetitive muscular injuries. Although most are made for adult-sized hands, some features may be considered at any age. They may be particularly useful to students needing keyboards with physical adjustment capabilities.

Computer Access

Ergonomic Keyboards

- **VERTICAL SPLIT KEYBOARD**

- Features

- Standard keyboard's hand sections are placed upright.
 - This "hand-shake" position is considered the neutral posture for forearms and hands.
 - Designed laterally into vertically arranged cooperative keypad halves. This allows the student to sit with the keyboard directly on her lap or on any surface.



- **BAT KEYBOARD**

- Features

- Uses chording System for typing
 - Available for one and two-handed users



Computer Access Ergonomic Keyboards



- **CONTOURED KEYBOARDS**

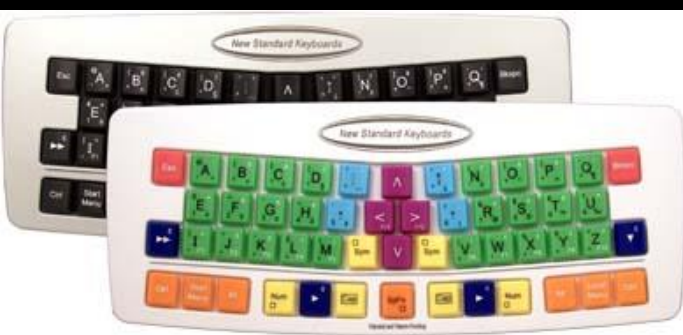
- Features

- Allows for a more natural placement of arms and hands

- **NEW STANDARD KEYBOARDS**

- Features

- Designed for use by individuals with learning or upper extremity disabilities
- Alphabet is broken into small, familiar groups of four or five letters
- The rainbow color scheme was designed for classroom use, to help teachers give children a better understanding of the different functions of the keys, which also helps them understand the computer itself



Computer Access Mouse Options

- The following pointing devices are "plug and play" mouse alternatives, as they require no special interface. Simply plug them into a mouse port and they're ready to use! We discuss a variety of options but more emerge every day!

Computer Access Mouse Options

- **KidzMouse** No need to click on a button! The KidzMouse can be squeezed anywhere to make it work. It's sized to better fit small hands and uses a child's natural responses for better control. Two can be used at the same time so that each young child can have their own to use.
Cost: \$23.95
- **Little Mouse and Tiny Mouse** ([The Secret Seven Corp.](#))
These small mice are sized for a child's hand. Little Mouse is 2/3 the size of a standard mouse. Tiny Mouse is even smaller, 1/2 the size of an adult mouse. Longer buttons marked with bright dots also make it easier to use. A mouse with a Mouse Wheel is also available, which can act as a double-click.
Cost: \$24.95



Computer Access

Mouse Options

- **Kiddy Mouse (LeClick)**
This mouse is designed for children in primary grades. It is curved to fit a small hand better. Buttons are programmable and a third button on the side makes it easy to double-click. (Windows only.)
Cost: \$24.95
- **Mouse Pen ([Fellowes](#))**
Students hold this mouse like a crayon or pen to control the pointer on the screen. The ball mechanism allows this unit to work on almost any surface, including your leg. Mouse Pens are available in both Windows and Mac versions.



Computer Access Mouse Options

- The **IntelliKeys** keyboard ([IntelliTools](#)) operates as a mouse with the standard "Arrows Overlay".



Computer Access Mouse Options

- **BIGtrack** ([Infogrip](#))
BIGtrack is the largest trackball available for both PC and Mac. It helps children use the computer successfully right from the start. The large ball requires less fine-motor control, which makes positioning the mouse cursor easier for children. It works with any software that supports a mouse.
Cost: \$79.00
- **Orbit Trackball** ([Kensington Technology Group](#))
This trackball provides a natural wrist support to interact with the large ball and two programmable buttons.
Cost \$29.99



Computer Access Mouse Options

- Touch pads require the light touch of a finger gliding across the surface to move the mouse pointer. A tap of the finger acts as a "click". They call for accurate, yet minimal arm and wrist motion. Driver software provides for customizing the buttons for easier control. Laptop computers often use this technology
 - **SmartCat Touchpad** ([Cirque Corporation](#))
This touch pad offers a small touch area, requires little dexterity, and is not pressure-sensitive. You can place it anywhere, such as on your lap, the desk, or the floor. Little or no movement is needed from the shoulder, arm, wrist or hand.
Cost: \$59.00



Computer Access Portable Note Takers

- When selecting keyboards, portability is often an essential feature for students with disabilities. When notes need to be typed in the classroom, a portable note taker has several advantages. It can work as a note-taker when battery-powered and then connect to a computer to download the information. It can also serve as a keyboard to input information directly to a computer. Because these devices are compact and lightweight, students can use them anywhere and anytime.

Computer Access

Portable Note Takers: Examples



- ALPHASMART 3000
- DREAMWRITER 500
- LASER PC6
- DIGITAL NOTEBOOK
- CALCUSCRIBE

Where We Are

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- **Upstate and Coastal Regions**

Greenville and Charleston,
AT specialists coming soon

Contact us:



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<http://www.ed.sc.gov>

Resources

- **Resources**
- WATI Initiative (1997). Designing environments for successful kids: A resource manual. WATI: Amherst, WI. <http://www.wati.org/>
- High & Low Tech Tools for People with Learning Disabilities. Richard Wandeman's Tips: http://www.idonline.org/bulletin_boards/techtalk/rwanderman.html
- Abledata.com