NWACS Learning Network 5/16/24

Assistive Technology Tools to Support Comprehensive Literacy

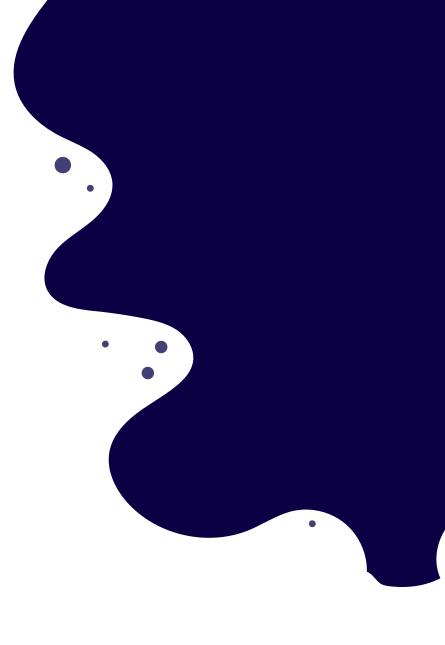


Amy Connolly, OT, ATP & Sara Ayars, MS, CCC-SLP

Special Thanks

To everyone at the Special Education Technology Center & Bark Lark, who suggested us for this series and continues to serve as an important thought partner and co-conspirator





Plan for the Hour

Part 1: Foundational Techniques

- Establishing Yes and No: Establishing a clear "Yes" and "No" response is essential for student agency and participation in reading and writing experiences.
- **Finding switch site:** Establishing a reliable and consistent switch access method will open up opportunities to engage with books independently and with peers.
- Partner-Assisted Scanning (PAS) Use what you have!

Part 2: Universal Tools for Literacy Instruction

As the **focus of our time**, we will explore tools to support students with complex communication and physical access needs.

Resources



Comprehensive Literacy for All:

Teaching Students with Significant
Disabilities to Read and Write (book)



Center for Literacy and Disability Studies

(UNC - Chapel Hill)



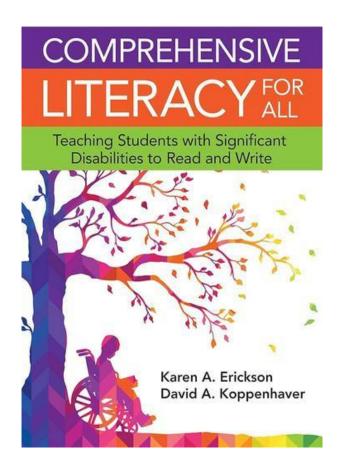
Project Core Modules



Dynamic learning Maps Professional Development



Special Education Technology Center Unlocking Literacy Modules



Unlocking Literacy Instruction Modules



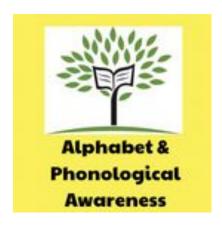
This presentation is adapted from <u>Module 1</u>, <u>Part 2 of the Unlocking Literacy series</u> by SETC, titled "Universal Tools and Strategies", which resides in the public domain. This content was obtained on the OER Commons. It has been re-mixed and shared according to the following usage rights, which should be retained in future uses: CC BY-NC-SA

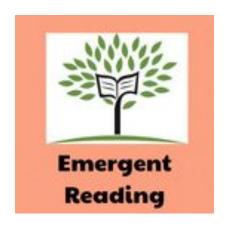
View <u>the full series on OER Commons</u> (free open educational resources, sign in required). Clock hours available via <u>eLearning for Educators</u>.

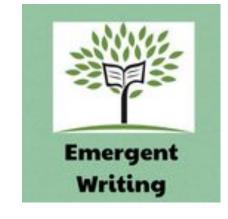












Four questions



Know most of the letters, most of the time?
Understand that text is made of letters and words?
Engage with books during shared reading?
Have a communication system?

No

Yes

Shared reading
Independent reading
Independent writing
Shared writing
Working with letters and sounds

Guided reading
Independent reading
Independent writing
Working with words



Shared Reading

Project Core (14:16)





Shared writing



Shared writing is the "co-construction of text, when a more skilled other scaffolds the process of developing an idea that is then represented in print." (Sheldon, 2020)

Example: using an alphabet flip chart (alt. pencil) to write a word that is added to predictable chart <u>Alternative Pencils: When Holding a Pencil is Difficult</u> (1:38)

Stages of Writing Development

Stage	Example
Preliterate: Drawing uses drawing to stand for writing believes that drawings / writing is communication of a purposeful message read their drawings as if there were writing on them	
Preliterate: Scribbling scribbles but intends it as writing scribbling resembles writing holds and uses pencil like an adult	9 mms
Shapes in writing actually resemble letters shapes are not actually letters look like poorly formed letters, but are unique creations	60CZ 0-6706 250:0200
uses letter sequences perhaps learned from his/her name may write the same letters in many ways long strings of letters in random order	CHPFDPE3dP4 NC rm C 02+d/
Transitional: Writing via invented spelling creates own spelling when conventional spelling is not known one letter may represent an entire syllable words may overlay may not use proper spacing as writing matures, more words are spelled conventionally as writing matures, perhaps only one or two letters invented or omitted	I who hape wen skul iz t I lk + pla wt mi fredz in te Sumr tatz 1+2 OV fn
Fluency: Conventional spelling usually resembles adult writing	Once upon a time a dog named Rags got lost in the woods. All of the people looked for hin After a while he found his way home again His family was very happy.



Meaningful Purposes of Writing

It's always important to designate a **purpose** for writing. This way the activity is meaningful and interesting for the student. Here are some examples of various purposes for writing.

Journaling

Poetry

•Emails, cards, notes, letters

Artwork

Pictures/captions

Creating comics

Classroom newsletter

Write books

Signs and posters

Social media

Scrapbooking or invitations

Getting Writing on the Radar for Students with Significant Disabilities – Dr. Gretchen Hanser April 5, 2018



The Art of Attributing
Meaning to Student
Attempts with Dr
Caroline Musselwhite
(2:13)

Foundational Techniques



Foundational Technique 1: Establishing a "Yes" & "No"



Make sure adults and peers know the way each student communicates "yes" & "no."

TIP: If they only have one gesture, let the student know how you are interpreting no action.

Example Cue: Look up to say "yes." If you don't look up, I am understanding you to be saying "No."

Example Cue: Turn your head away to say "no." If you don't turn your head away, I'm assuming you are saying "YES."



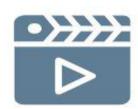




Foundational Technique 1: Establishing a "Yes" & "No" con't.

Examples:

Student	"YES"	"NO"	PROMPT
Stephanie	nod	pout lip, turn right	none
Zidane	chin to chest	nothing	tactile tap on forehead
Sophie	look up	turn right	none
Elleria	turn right	turn left	
Reid	clap	ASL no	model hand gesture
Nathan	"yah"	"no no"	"yes or no, which one?"





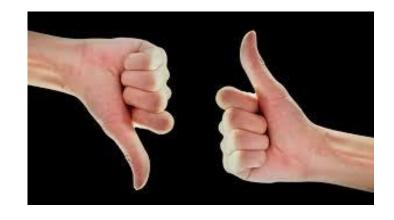


Ways We Say "YES" & "NO"



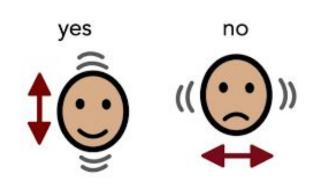
Head Movements





Gestures

Facial Expressions







Foundational Technique 2: Establish a Switch Access Site

Find a Switch Site

A switch site is a location where the student touches the switch. The movement needs to be voluntary & repeatable.

Examples: Hand, head, elbow, or foot.

Did you Know...
Children with special needs often need to practice a motor plan 250 times before it can become automatic?

Select the Switch Type

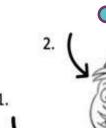
Choose the best switch type for the student's movement. They have to be able to get on and off independently, without too much fatigue.

Examples:

Little Candy Corn Proximity Switch for minimal strength or movement Specs Switch for small movements for finger or slight head movement) Jelly Bean Switch for stronger movements (elbow or foot)







Determining Switch Access Sites



Here is where you get to become a detective!
Use your clinical observation skills to critically look at your student to see what they move.
Then you can teach and shape that movement to become a switch access site.

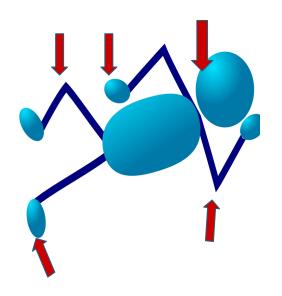
Things to consider when observing movement

The most efficient access site is often not the hand!

What movement allows for:

- the most engagement with the activity?
- the lowest cognitive load?
- the least amount of motor planning and accuracy to execute?

How do they need to be positioned to best access the switch?





Foundational Technique 3: Partner Assisted Scanning



With a Y/N, or at least a yes, you can do partner-assisted scanning (PAS).

Partner assisted scanning (PAS) is a communication strategy that can be used with people with significant motor impairments. PAS is when a communication partner scans through choices and a communicator indicates a positive response when offered their selection. It can be used as a primary communication mode or it can be used in conjunction with an alternative or augmentative communication (AAC) device if the communication device is broken or unavailable or it just doesn't have the appropriate vocabulary.





Communicating with Partner Assisted Scanning (~10 min video)

<u>Demonstration: partner assisted scanning with a communication book</u> (1:14)

Using Technology Tools and Strategies for Literacy Instruction

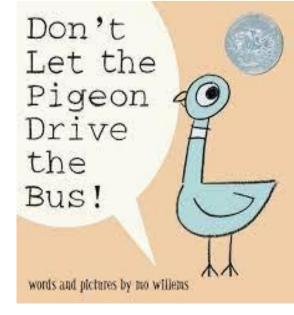
Watch this 7 min video of application ideas using the book Don't Let the Pigeon Drive the Bus by Mo Willems















Talking Buttons

Talking Buttons are single message buttons that allow you to record a single word or recurring phrase in a book that allows those who are not functionally verbal to participate in shared reading opportunities.



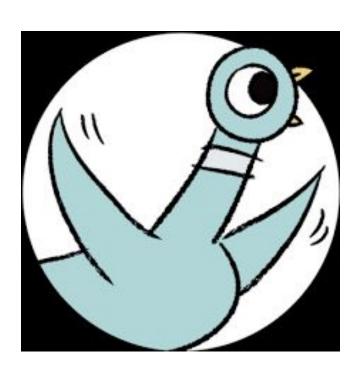
<u>Using Talking Buttons</u> (2:13)



Application Idea



Use the Talking Buttons with Don't Let the Pigeon Drive the Bus!



Recording Examples:

"NO!" **or** "No, you can't drive the bus!" **or** "Pigeons don't know how to drive!"

Strategies:

- During shared reading, discuss purpose, organization, and basic print features, such as top to bottom, and left to right.
- Use a pointer or your finger to show that sequences of letters make up words and spaces separate each word.
- Discuss the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation.

Standard Addressed:

K.1, K.1.A, K.1.B, K.1.C, 1.1, 1.1.A, K.4

Application Idea







Eye Gaze Boards

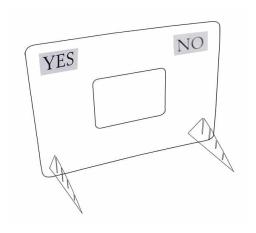
Eye Gaze Boards can be used to provide choices for students who are able to use their eyes to make selections.

Pictures and/or words are placed in quadrants of the eye gaze board. An open window in the middle of the board, allows the educator to clearly see the student's selection.



<u>Using an Eye Gaze Board</u> (1:17)

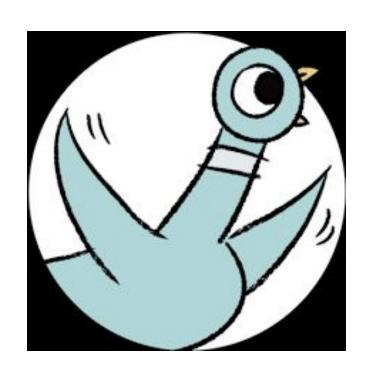












Use the eye gaze board with *Don't Let the Pigeon Drive the Bus!* Just like the pigeon in the book, your students want to talk about things they really want to do, as well as feelings they have about what they want to do. The eye gaze board gives the students one way to communicate, as well as a way to make choices. You can use printed pictures and/or words or write on post-it notes.

Choice Examples: emotions - happy, sad, frustrated, mad OR things that your students really, really want to do **Strategies:**

- Say each word or picture as you point to each one, giving the student time to hear and view each option before asking them to make a selection.
- Remind students to look at the picture/word they want.

Standard Addressed: RL.K.1, RL.1.1, RL.2.1



Application Idea





Eye Gaze Frame

SPECIAL ED TECH CENTER



Little Step by Step

A Little Step by Step is a multi-message communication tool. "Multi-message" means that a sequence of messages can be recorded for a student to activate when they touch the Step by Step. This tool has 3 different levels for recording 3 separate sequenced messages, up to _____.

Other types of switches, such as proximity switch, can be plugged into the Little Step by Step to allow students to use their best access method when using this tool to communicate.



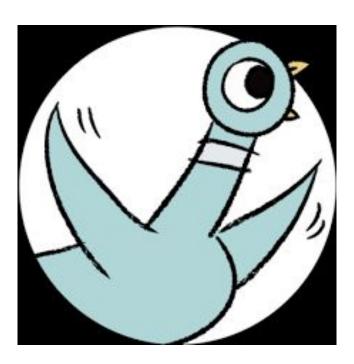


How to set up a Step-By-Step (2:07)

Switch Use with Little Penguin Gets the Hiccups (1:32)







Use the Step by Step with Don't Let the Pigeon Drive the Bus!

Example recording:

LEVEL 1 - Building Same/Different Language Concepts:

"Do you want to play a game of would you rather? (click)

"Would you rather drive a bus or drive a police car? (click)

"I chose the bus."

LEVEL 2 - Home-School Connection:

"Do you want to hear about my day? (click)

"We read a book about a pigeon that wanted to drive a bus." (click).

"Me and my friends said we would rather drive a police car." (click)

"What about you, Mom, would you rather drive a school bus or a police car?"

LEVEL 3 - Shared Reading Task:

"No!" (click)

"You can't drive the bus!" (click)

"Don't try to trick me." (click)

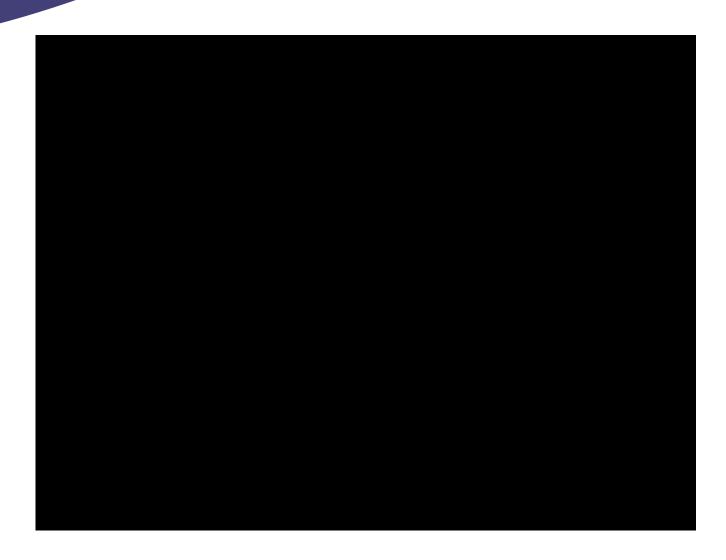
"No whining."

Standard Addressed:

K.1, K.1.A, K.1.B, K.1.C, 1.1, 1.1.A, K.4









Easy Holds & Sticks

Easy Holds and Industrial Twist Ties allow students with limited fine motor control to hold and use tools like markers or drumsticks.



Industrial Twist Rubber Ties

Drumsticks

Student Using an Easy Hold (0:53)







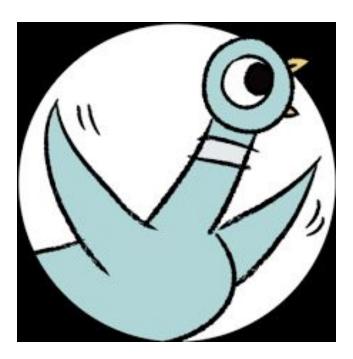




Application Idea



Use EasyHolds/Drumsticks with *Don't Let the Pigeon Drive the Bus!*



Strategies:

Have the student tap out the syllables of words in the story.

Pi-geon

Frus-tra-ted

de-ter-mined

Standard Addressed:

RF.K.2,2.B, 2.C, 2.d, 2.E

RF 1.2, 1.2C, 1.2.D, 1.3.D, 1.3.E



Switch Adapted Spinners

Switch Adapted Spinners provide opportunities for a student to make a random selection from a variety of choices. The student can touch the switch to turn the dial. Different overlays can be placed on the spinner to match lessons and learning activities.

Overlays can be made on the fly or printed in advance. <u>Online</u> options (websites), with a switch connected to a computer, are also a good option! These can be easily edited on the fly.

Different types of switches can be used with the Switch Adapted Spinner to allow students to use their best access method when using this tool.

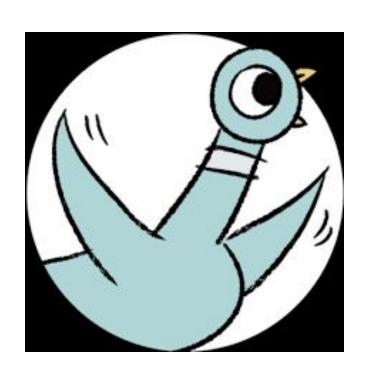




Application Idea



Use the Switch Adapted Spinners with *Don't Let the Pigeon Drive the Bus!*



Example of Choices: Write target letters on the Switch Adapted Spinner. Attach a switch to the spinner so the students can press the switch to spin to the letter they choose.

Strategy: Explain to the student that new words can be made by changing the first letter in a word we already know. For example, if we change the "b" in bus to a "g," we spell "gus." Ask the student "Pick a letter and see what word you can make" This activity gives students the opportunity to experience letter sounds and blends. Nonsense words are acceptable in this activity! B-us, G-us, Th-us, P-us, F-us.

Standard Addressed: RF.K.2,2.B, 2.C, 2.d, 2.E

RF 1.2, 1.2C, 1.2.D, 1.3.D, 1.3.E



Application Idea





All-Turn-It Spinner

SPECIAL ED TECH CENTER





Making words with multiple methods

Spinners: <u>All Turn It</u> or <u>Online</u>

Onset rime activities

Word chant from Caroline Musselwhite





Flip Charts & Pocket Charts

Flip charts and pocket charts provide a creative and portable way to build word walls, core boards, or alternative pencils. Letters, words, and pictures can be placed in the pockets.

Letters and words can be rearranged and combined to form words or sentences.

Pocket Chart

Table Stand





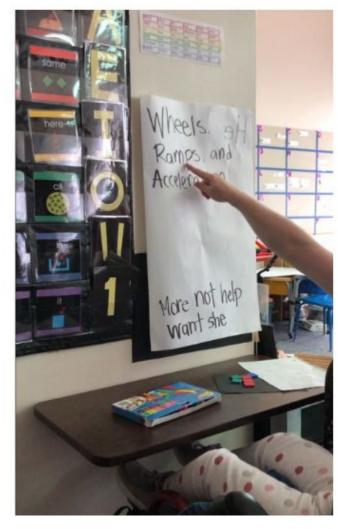
Example: Science writing with partner assisted scanning (PAS), using aided (voice output switch) or unaided (eye gaze) Y/N with high contrast, color-coded core board





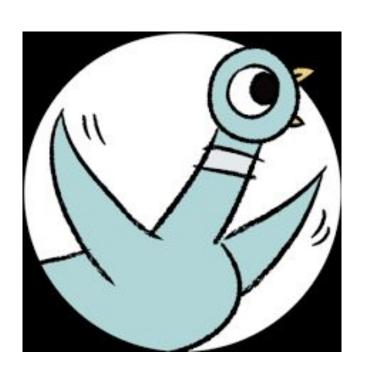
Read more about this student and her access (PDF).











Use a Pocket Chart with *Don't Let the Pigeon Drive the Bus!* Have blank notecards and a Sharpie ready to write student-selected words.

Strategy:

- As you read the story have the students choose letters/words to be displayed to help with letter/word recognition.
- Model using the words displayed to spell similar words.
- Point out spelling patterns as you create new words. (ie. Final e makes a vowel long)

Standard Addressed: 1.3.C, 2.3.B,



Alternative Pencil

When holding a pencil is difficult...

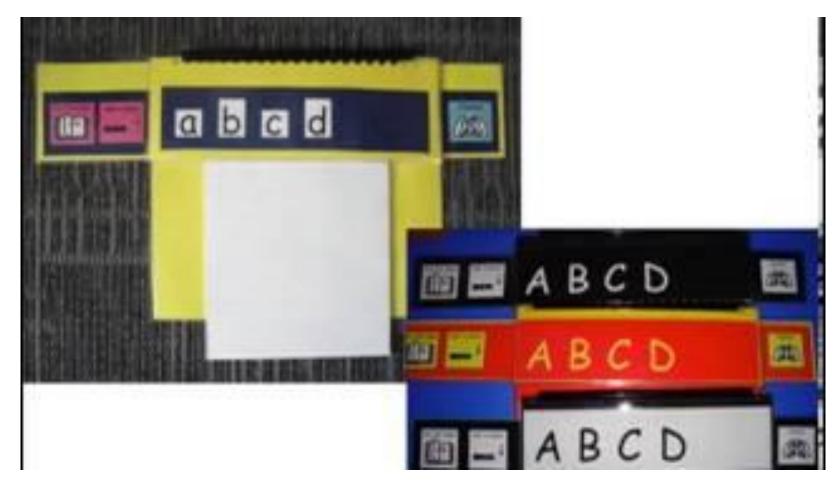
Developed at the Center for Literacy and Disability Studies (CLDS), and written about by Hanser (2006, 2009), an alternative pencil is defined as anything that provides a student with access to all 26 letters of the alphabet for use in writing.





Alternative Pencil Resources from CLDS: view, print & create an alternative pencil from the templates provided.

Learn about Alternative Pencils via website & webinar entitled "Why Bother?" Learn more about Alternative Pencils with SETC (webinar)





Dynamic Learning Maps PD Module on Alternative Pencils (23 min)

Alternative Pencils

- The adult offers letters to the student using PAS, and the student selects the letters that they want to use.
- Students need access to the full alphabet in order to learn about the alphabet.
- All students, regardless of their ability, learn about writing and alternative pencils by writing. They do not need to know the alphabet in order to learn to use an alternative pencil.
- There are no prerequisites to writing.







Steps for alphabet flipbook

Learner

Start at A, and offer each letter.

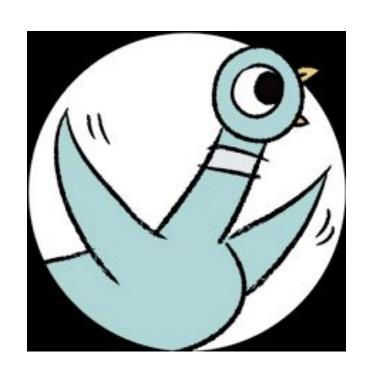
When the student says "yes", offer that letter again and keep going letter by letter. Encourage the student to pick more letters!

Fluent user

Start on first page. "Do you want any of these?" If yes, offer each one. If no, move to next page. When student picks a letter, start again on the first page for the next letter.







Use an Alternative Pencil with *Don't Let the Pigeon Drive the Bus!* Using the alternative pencil, the student chooses letters to create words, answer questions or write down ideas to create a story. In the student's version of the story, the penguin might say "Please! If you let me drive the bus, I'll give you a bucket of <u>Goldfish</u> crackers!"

Strategies:

- Modeling: Model using the alternative pencil to spell out the student's favorite food. (Goldfish Crackers, Cheetos, Oreos)
- Partner-Assisted Scanning: A way for communication partners to "assist" students by listing or scanning through possible choices. As you list or scan through the letter choices on the alternative pencil, the student can use their "yes" or "no" to select letters to create words. Let the student string together letters to form words. Nonsense words are OK as students begin to play with letters for form words.

Standard Addressed: K.1, K.1.A, K.1.B, K.1.C, 1.1, 1.1.A, K.4







Phonetic Keyboards

A phonetic keyboard is a keyboard with voice output that says the letter sound rather than the letter name when it is selected.

Phonetic keyboards are available on many Augmentative Alternative Communication (AAC) systems.

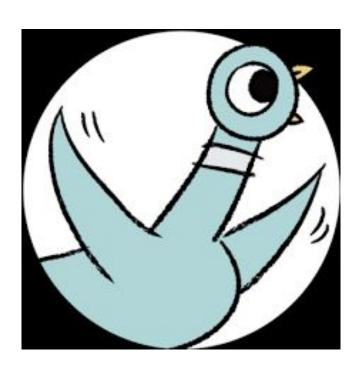


<u>Using Phonetic Keyboards on AAC</u> (2:05)









Use a phonetic keyboard with *Don't Let the Pigeon Drive the Bus!* Students select letters, create words and answer questions or write down ideas to write their own stories. In the student's version of the story, the penguin says "Please! If you let me drive the bus, I'll blow a hundred bubbles"

Strategies:

- Modeling: Use the phonetic keyboard to sound out the child's favorite activity. (bubbles, music, swing)
- Partner Assisted Auditory Scanning a way for communication partners to "assist" students by scanning through possible choices. As the student listens to the letter sounds, the student can use their "yes" or "no" to select letter sounds to create words.
- When using a phonetic keyboard, demonstrate how long vowels say their name and how short vowels make a different sound. Model the spelling-sound correspondences for common consonant digraphs.

Standard Addressed: 1.2.A, K.3.B, 1.3.A, 2.3, 2.3.A W.K.1,W.K.2,W.K.3



Applicator Switch Interface

The Applicator is a switch interface that allows a switch to work with an iPad or computer. The interface is what tells the iPad what to do when the switch is pressed; it "translates" the switch input.

For example, a switch press can be programmed to turn the page of a book in iBooks or play and pause a YouTube Video. This is often accomplished by sending key presses (e.g., space or enter).



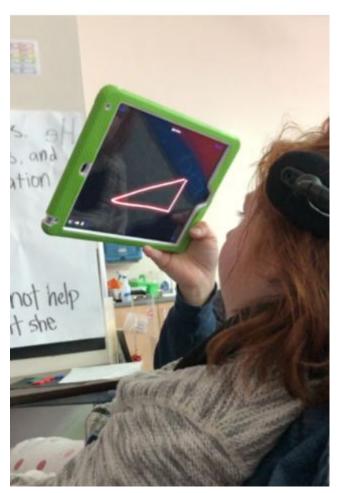
Learn about Single Shot Mode on the Applicator



Example

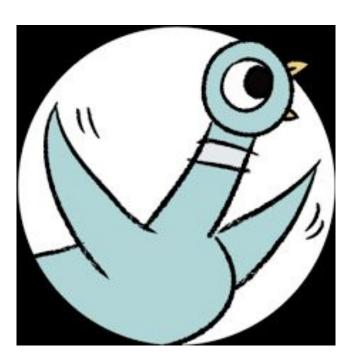
Illustrating science writing using switch control recipes (custom gesture) on iPad with app Glow Draw











Use the APPlicator interface and a switch to read *Don't Let the Pigeon Drive the Bus!* Use a read-aloud on YouTube or use the iBook version on the iPad.

- Don't Let the Pigeon Drive the Bus Animated Read-Aloud
- Don't Let the Pigeon Drive the Bus Apple iBook
- Use TarHeel Reader to make these videos switch-accessible.

Tutorials (PDFs):

How to Use a Switch to Turn Pages in a Book on an iPad Using a Switch to Start/Stop a YouTube Video on an iPad

Standard Addressed: RI.K.10, RI.1.10, RI.2.10

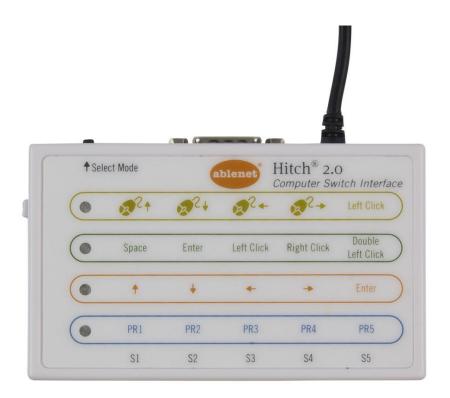


Hitch 2 Switch Interface

The Hitch 2 is a plug-and-play USB switch interface that allows up to 5 switches with different functions. The Hitch plugs into a computer and can be used to access switch-accessible software and web pages. Like the APPlicator, it can send key presses; unlike APPlicator, it can also send clicks.

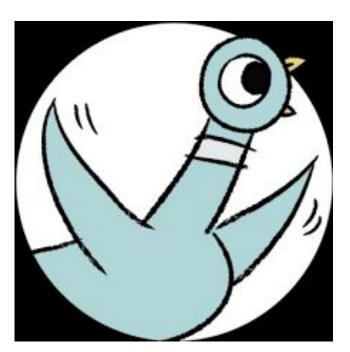


Setting up the Hitch 2 (1:14)









Use a switch and the Hitch 2 switch interface to read *Don't Let the Pigeon Drive the Bus!*

Read a version of this book and other books on Tar Heel Reader or create your own book in Tar Heel Reader. You can also use Tarheel GamePlay if the book is available via YouTube video.

Resource:

Switch Access to Tar Heel Reader

Standard Addressed: W.K.6, W.1.6, W.2.6

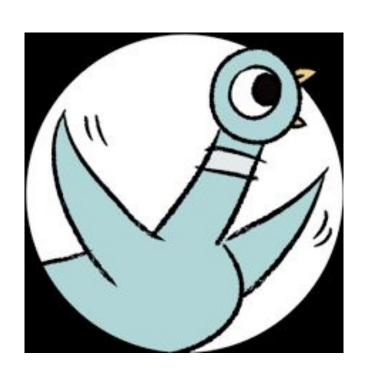


Dry Erase boards & Magnetic Letters

Dry Erase boards and magnetic letter sets are a portable, no-tech way to engage students with letters and words. As letters and words are written or formed using these tools, students see visually how letters are combined to create words and words are combined to create sentences.







Use a whiteboard for literacy activities with *Don't Let the Pigeon Drive the Bus!* Read a version of this book and other books on Tar Heel Reader or create your own book in Tar Heel Reader.

Use this tool to write ideas and provide a visual for the student's

Use this tool to write ideas and provide a visual for the student's ideas. Write down common words that the student can begin to learn as sight words. Or write down student ideas about why they were telling the penguin no. "Why can't he drive the bus?". Or write words that can be made from the letters in P-E-N-G-U-I-N

PIN

PEG

PEN

Arrange and rearrange letters to make words.

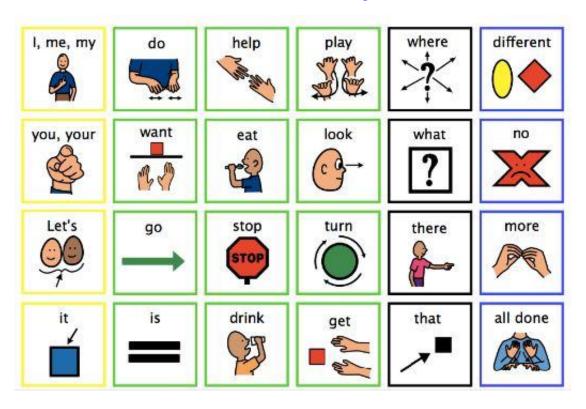
Name upper and lowercase letters.

Standard Addressed: K.3.C, 1.3.B, K.1.D, K.3,



Core and Fringe Boards

Core words: High-frequency words include 75-80% of the words we use every day. Core words can be used across a variety of situations with many communication partners. **Project Core**



Fringe words – words that can be used in specific situations. These words are usually nouns. Examples: pumpkin, cat, witch, ghost





Low Tech Communication Boards & Books

Having access to a low-tech picture or symbol-based board provides another way for students to communicate across settings. Ideally, a student will have access to both a high-tech AAC system and a low-tech board that matches their high-tech system.

Printable Communication Boards





AAC Systems on the iPad

There are a variety of Augmentative Alternative Communication (AAC) apps for the iPad that can be accessed in a variety of ways, including pointing, face-pointing, or using switches.

Proloquo2go (4:17)



LAMP (4:41)



TouchChat (5:00)













Dedicated AAC Systems

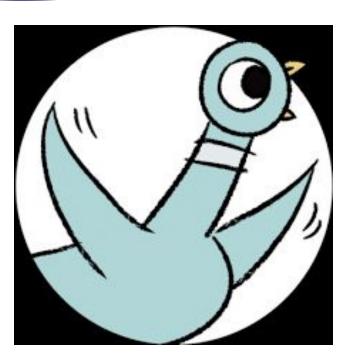
While some students have an iPad with an Augmentative Alternative Communication (AAC) app as their communication system, other students may use a dedicated AAC device with a built-in language system. A Speech Language Pathologist can help you determine which AAC app or device best meets the language needs of your child/student. Occupational Therapists and others can help determine appropriate access methods.











Use a communication board, AAC app, or dedicated device with Don't Let the Pigeon Drive the Bus! Tell the student: "The Pigeon really wanted to drive the bus. What is something you really really want to do but mom or teacher always seem to say "no?"

Have the student write their own version of Don't Let the Pigeon Drive the bus using the following app:

Don't Let Pigeon Run this App

Demonstration of Don't Let Pigeon Run This App Activity (4:42)

Standard Addressed: RI.K.7, RI.1.7









Keyguards

Keyguards are used for students who can use their hands to access a communication device but struggle to target specific buttons without activating other buttons or for students who need tactile support to know where buttons are on the screen. A keyguard is a plastic grid that attaches to and lays over a communication device, providing boundaries to the buttons. A keyguard has openings that reveal the communication grid so that the buttons can be seen and accessed.



Video on Keyguards (3:26)





Low Tech Tools on a Budget





<u>Talking Buttons</u> <u>by Inclusive TLC</u>

10 Pack for \$80





Step by Step by AbleNet

\$195.00





<u>Little Candy Corn Switch</u> <u>by Ablenet -</u> <u>Proximity Switch</u>

\$195.00





Jelly Bean Switch by Ablenet

\$65.00





Video highlighting Low Tech Tools on a Budget (1:53)



Low Tech Eye Gaze Board
- Enabling Devices

Starting at \$27.95

...or make your own





Hitch 2 - Switch interface to the computer

\$99.00





Battery Interrupter on Amazon

\$10.95

\$



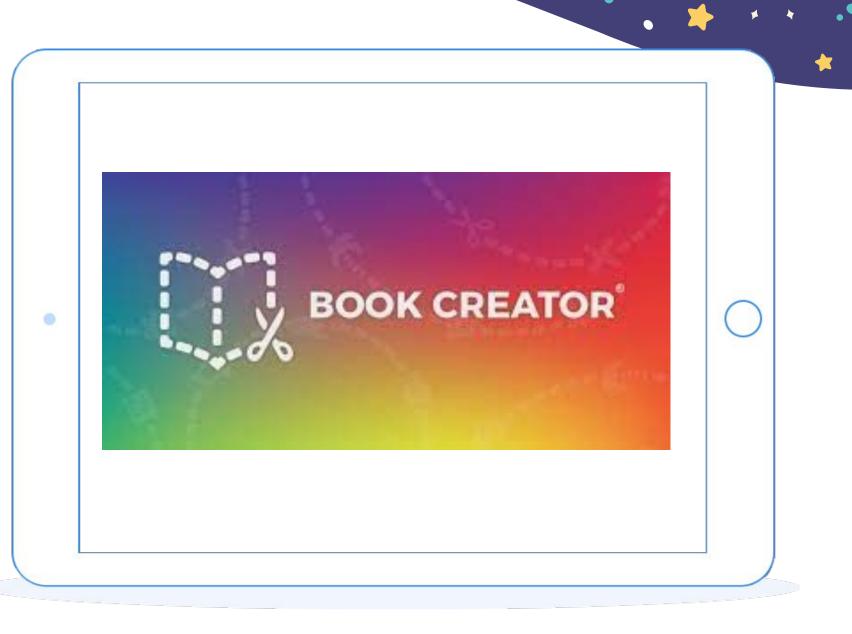
Applicator - Switch
Inferface to the iPad Inclusive TLC

\$165.00

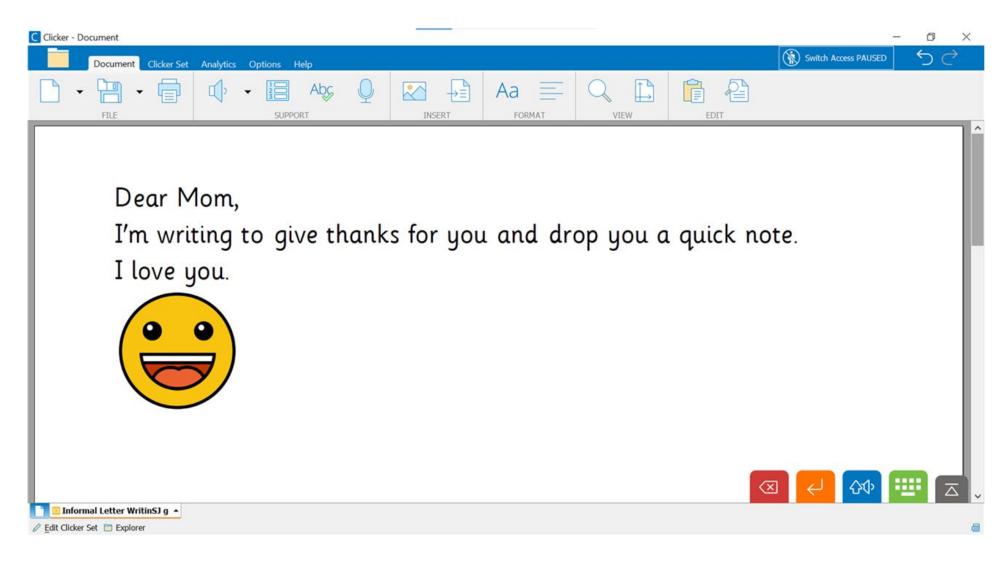


Book Creator

https://bookcreator.com/



Shared Writing example using Clicker





Clicker

Cricksoft / Clicker Training Hub

<u>Clicker Basics</u> presents features in terms of functions, Win/Mac vs. iPad/Chromebook - as well as features by app (e.g., Clicker Writer vs. Clicker Books).

- WRITING SUPPORT
- READING AND BUILDING
 VOCABULARY
- TALKING AND PLANNING

Example: 2 videos on Writing Support > Speech Support, (each <1 min).

Introductory Webinar - 10 short videos on specific aspects of Clicker. Great starting point!

Live webinars



Clicker Tour / Overview

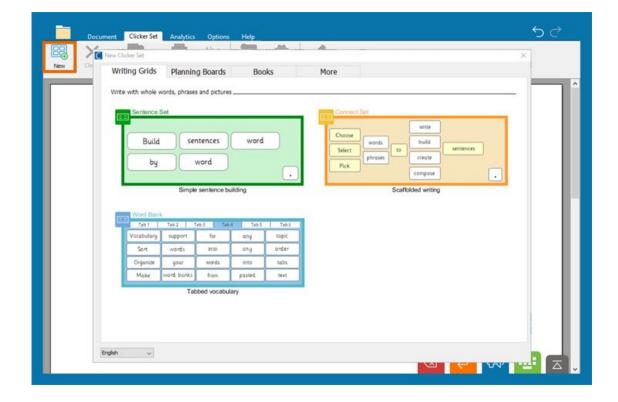
Writing Grids

- Sentence
- Connect
- Word Bank

Clicker Books

Learning Grids

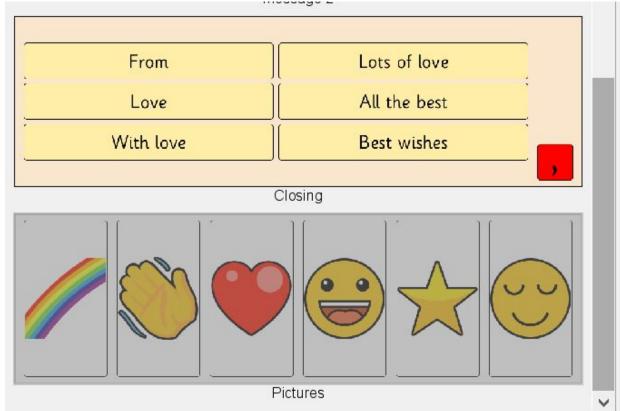
Custom Sets





Clicker example continued





Kyle,

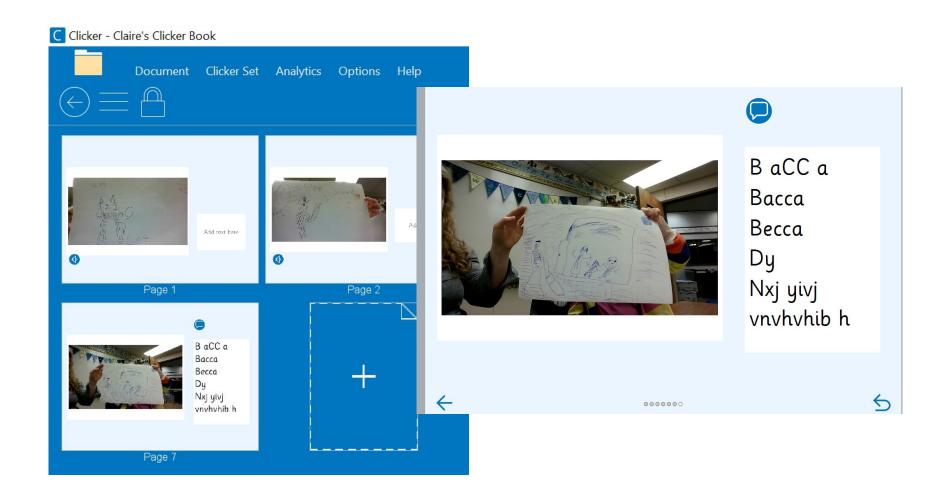
I'm writing to send my love and give thanks for you.

I'm also writing to drop you a quick note.

I hope that you are well.

From,

Clicker example of independent writing



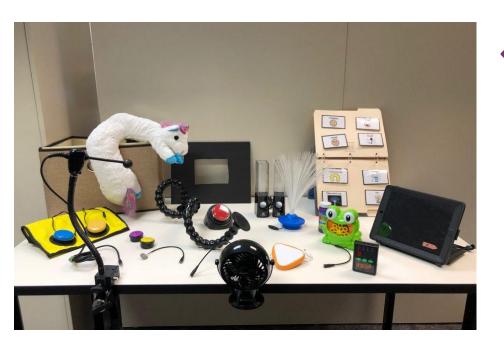
Clicker independent writing example

First my student recorded herself speaking about the picture. Then picked a word to type. She chose the name of her friend, Becca. Pressed "b" and it auto capped - she acknowledged the change. Used extra spaces, phonetically spelled rest... Listened to parts of typed word; then, with feedback about spaces, chose to try again without them... typed with letter sounds from me, then listened back. Next I showed her how I would write Becca; she listened, smiled, then she wanted to write independently. She proceeded to use keyboard, listening to groups of letters, then sounding out letters, searching, and typing with what appeared to be more intention than first attempt. After finishing the book, she recorded herself reading it & loved listening to herself read aloud.



SETC Lending Library

The Special Education Technology Center (SETC) has a lending library of technology for WA state educators. Many of the items discussed in this module are available to borrow through the <u>SETC Lending Library</u>. While you can check out items individually, you can also borrow two kits (pictured below) that may help you in your journey of teaching literacy to students with complex communication needs and physical access needs. In addition, you can request FREE TECHNICAL ASSISTANCE - SETC staff can help you troubleshoot how to use these tools with your students to support literacy. Request a FREE Tech Assist

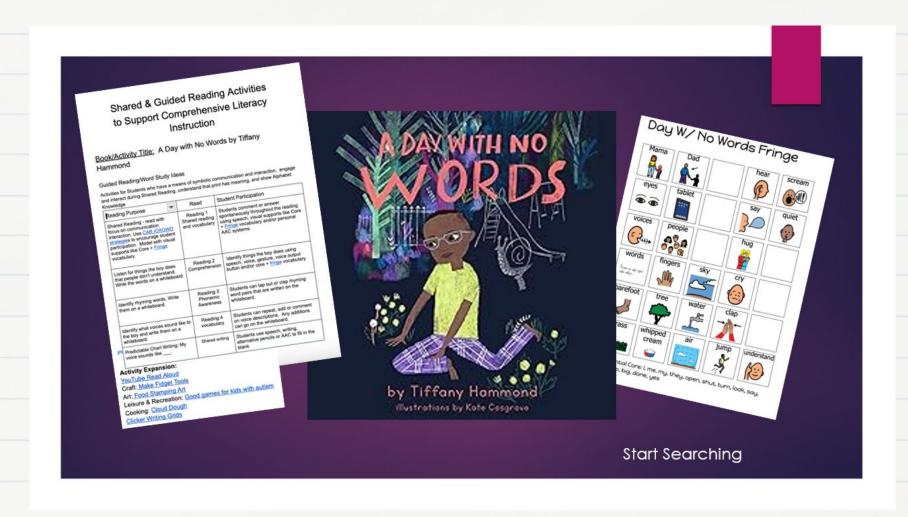


Switch Kit

Low Tech Literacy Kit Link



Comprehensive Literacy for All Book Collection



Other Resources in WA State



Washington Assistive Technology Act Program (WATAP)

The Washington Assistive Technology Act Program (WATAP) provides resources and services to persons who face challenges related to disability to help in the selection and use of assistive technology. WATAP serves persons with disabilities, and their circle of support, including family members, caregivers, employers, service provider professionals, educators, and others seeking AT expertise.



Northwest Augmentative Communication Society

The Northwest Augmentative Communication Society (NWACS) is a non-profit organization that focuses on educating and raising awareness about augmentative and alternative communication.

Thank you!

Questions? Tips?