

### The many labels of Executive Function Disorder

Students with executive function challenges are often labeled:

- *Lazy*
- *Disorganized*
- *Hyperactive*
- *Learning disabled*
- *Autistic*
- *Behavior problems*



### Executive Function – a definition

**Executive Function:** Cognitive processing of information that takes place in areas in the left frontal lobe and prefrontal cortex that exercise conscious control over one's emotions and thoughts.



This control allows for patterned information to be used for **organizing, analyzing, sorting, connecting, planning, prioritizing, sequencing, self-monitoring, self-correcting, assessment, abstractions, problem solving, attention focusing, and linking information** to appropriate actions.

Willis, Judy. Friendly Strategies for the Inclusion Classroom-Insights from a Neurologist and Classroom Teacher. Association for Curriculum Development, Alexandria, Virginia. 2007

### What do Executive Function challenges look like in the classroom?

In the classroom, the student with EF challenges may struggle to:

- Get started on his work (*What should I do first?*)
- Keep track of time (*Is it time for recess yet?*)
- Do more than one thing at once (*I have to spell correctly AND check punctuation?*)
- Work in a group (*Somebody is touching me!!*)
- Edit and revise (*it's done. Why should I change anything?* )
- Finish work on time (*So many more interesting things to do*)
- ask for help (*It's embarrassing*)
- wait to speak until we're called on (*but I need to know NOW!*)





### More classroom clues that a student might have EF challenges

In the classroom the student with EF challenges may struggle to:

- Finish a 'packet project' (*This research packet has 15 pages!!!*)
- understand how much time a project will take to complete (*I'll do it tomorrow*)
- Write in an organized, sequential manner (*I just want to get it done*)
- retrieve information from memory (*But I really DID study!*)
- Multitask (*How can I finish my morning work AND write down the assignments that are on the board?*)
- **Regulate emotions** (*No! I hate to write! I refuse to do this!*)





### Why is the writing process so hard for kids with Executive Function challenges?

Let's look at a few of the skills needed for writing:

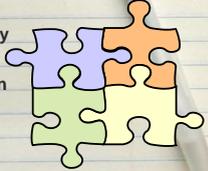
**A few of the skills needed for writing:**

- language skills
- Imitation skills
- Organization
- Problem solving
- Auditory and visual memory
- Sensory regulation
- Balance and Proprioception
- Gross motor control
- Fine motor control

Now let's look at a few of the skills that are hard for kids with executive function challenges:

**Sound familiar?**

- language skills
- Imitation skills
- Organization
- Problem solving
- Auditory and visual memory
- Sensory regulation
- Balance and Proprioception
- Gross motor control
- Fine motor control



**Brain Research and autism: it's all about connections**



**Writing skill: ability to imitate motor movements. "Watch me, make your letters like this....."**

The brains of individuals with ASD show differences in the mirror neurons of the parietal lobe. These are often referred to as the 'monkey see / monkey do' neurons – controlling a person's ability to imitate motor movements.

Manzar Ashtari, Children's Hospital of Philadelphia, J. Lindner Center for Autism, North Shore Long Island Jewish Health System in Bethpage, NY, 2007



**Writing skill: Ability to remember how to form letters "I don't remember how to make a W."**

The brains of individuals with ASD have fewer neural connections between the cortex (new information) and the cerebellum (automatic, long term memory)

Stewart H. Mostofsky, Stephanie K. Powell, Daniel J. Simmonds, Melissa C. Goldberg, Brian Caffo, James J. Pekar, Johns Hopkins School of Medicine, 2009



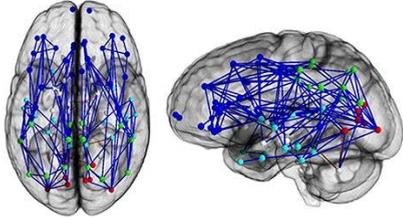
**Writing skill: ability to organize letters into words, words into sentences, sentences into paragraphs, etc. "This doesn't make sense!"**

The brains of individuals with ASD have more white matter, but far fewer connections between sections of the brain, i.e., less organization

Dr. Martha Herbert, Harvard Medical School, Pediatric Neurologist at Massachusetts General Hospital, TRANSCEND Research Program

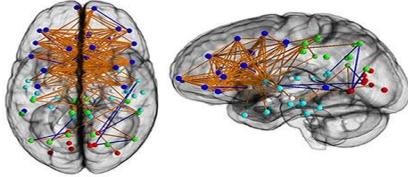


**Gender Differences: Males have more connections front to back, thus better skills with motor tasks, but worse memory**  
**Differences increase after age 14**



Proceedings of National Academy of Sciences 2013, Madhura Ingalkhalkara, 1, Alex Smitha, 1, Drew Parkera, et al , Sex differences in the structural connectome of the human brain

**Gender Differences: Female brain has more connections across hemispheres, thus better memory and social awareness, but worse motor control.**  
**Differences increase after age 14.**



Proceedings of National Academy of Sciences 2013, Madhura Ingalkhalkara, 1, Alex Smitha, 1, Drew Parkera, et al , Sex differences in the structural connectome of the human brain

**Writing skill: ability to process language** “Why didn’t you write down my directions for the assignment?”



- The brains of individuals with high functioning ASD have more activation in Wernicke’s area and less activation in Broca’s area – the two primary language areas of the brain, resulting in poor information integration, even in those with strong language skills.

M.A. Just, Vladimir L. Cherkassky, Imothy A. Keller, Nancy L. Minshew, Brain Journal of Neurology 2003

**Proficiency in Writing – A national concern**




*National Center for Education Statistics in 2003, Special Connections (2007) :*

According to data from the 2002 National Assessment of Educational Progress (NAEP), only 28% of fourth graders, 31% of eighth graders, and 24% of twelfth graders performed at or above a proficient level of writing achievement for their respective grade level (p.1).

**The writing process is difficult for MANY students**

The Mayo Clinic reported that one in six school age children has a Specific Learning Disability in written expression.



**Katusic and Colligan, 2009**

**Link between Writing and Learning Disabilities**



- Strong association between Specific Learning Disabilities and Written Language Disorder**
- Problems with writing can be seen at any age but tend to be increasingly apparent as children move through the early elementary grades and the demands of independent task completion become greater.**

### Link between Writing and Speech / Language Skills



1. Strong association between S/LI and WLD
2. Among children with S/LI, the cumulative incidence of WLD by age 19 years was 61.4% for boys and 55.1% for girls. (Among children without S/LI, the cumulative incidence of WLD by age 19 years was 18.5% for boys and 9.4% for girls)

Early Speech-Language Impairment and Risk for Written Language Disorder: A Population-Based Study (Mayo Clinic) Ruth E. Stackles, PhD,\* Robert C. Colligan, PhD,\* William J. Barbaresi, MD,\* Amy L. Weaver, MS,\* Jill M. Killian, BS,\* and Slavica K. Katusic

### Link between Writing and ADHD



1. Strong association between ADHD and WLD
2. Among children with ADHD, the cumulative incidences of WLD were 64.5% for boys and 57.0% for girls. In contrast, among children without ADHD, the cumulative incidences of WLD were 16.5% for boys and 9.4% for girls.

Written-Language Disorder Among Children With and Without ADHD in a Population-Based Birth Cohort Kouichi Yoshimasu, MD,a William J. Barbaresi, MD,b Robert C. Colligan, PhD,c Jill M. Killian, BS,a Robert G. Voigt, MD,d Amy L. Weaver, MS,a and Slavica K. Katusic, (Mayo Clinic)

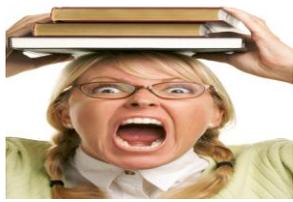
### Link between Writing and Autism Spectrum Disorder



1. Strong association between ASD and writing challenges
2. Students with ASD demonstrated a decrease in legibility, complexity and number of words used during handwriting tasks

Written Language Profile of Children and Youth with Asperger Syndrome: From Research to Practice, Education and Training in Developmental Disabilities, 2003, 38(4), 362-369 © Division on Developmental Disabilities. Brenda Smith Myles, Abigail Huggins, Malissa, Taku Higawara, Gene P. Barnhill, Deborah E. Grinstead

*“BUT.....as a teacher, I’m required to help ALL students meet academic standards in writing – whether they have a Special Ed label or not. HELP!!!?”*



### So....why teach writing?

Answer: the research shows:  
Writing can increase achievement in ALL areas



1. Writing about material that has been read increases comprehension
2. Teaching students how to write increases reading comprehension, fluency, and word reading.
3. Increasing amount of student writing increases reading comprehension

“Writing to Read”, Graham and Hebert, Harvard Educational Review, 2010

### For Grades K – 5, Indiana Academic Standards for Writing fall into Five areas:

1. Handwriting
2. Writing Genres
3. Writing Process
4. Research Process
5. Conventions of Standard English



*How can we increase achievement in all of these areas?*

*Writing challenges can be grouped into four main categories:*

- Language
- Organization
- Sensory
- Motor

**As teachers, we can help!**



**For ALL writing tasks:**  
Set your students up for success!

Before they start writing, make sure to address these things:

- Language – Do they *really* understand the task?
- Organization – Does the task need to be broken down into smaller chunks?
- Sensory – Is there distraction that can be eliminated? A need to move?
- Motor – Are poor motor skills impacting writing?

**GETTING STARTED**

*Teacher Concern: “When I give him a writing assignment, he just sits there. Even when it’s an easy task, well within his ability, he seems to freeze.”*

**Indiana Academic Standard / Guiding Principle for Writing:**  
*Students develop and employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes. Students experiment with different modes of writing to develop their craft and hone their skills as writers. Students conduct simple research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize information and data from a variety of sources to communicate their discoveries in ways that suit their purpose*

Getting started...

*why it happens, and what a teacher can do to help*

Consider the four main areas of difficulty:

- Language
- Organization
- Sensory
- Motor

**‘Getting started’...might be due to sensory issues.**

To help a student with executive function challenges break the cycle of inertia, we need to help him **WAKE UP HIS SYSTEM.**

- **Try this...**

**Getting started – Wake Up Exercises**

Before writing:

- Have the student ‘quickly!’ deliver a message to a teacher down the hall.
  - When the student returns, 30 wall pushups before he sits to write.
  - Whole class take a 15 minute walk. (Dr. John Ratey)
  - Have the student erase the white board.
- Stretch high



**GETTING STARTED -**  
**Sensory**  
**Movement**

- Encourage a movement break prior to writing  
Try carrying a crate of books to the library or take a message to another class
- Include 10/15 minutes of aerobic activity before writing (increase heart rate)
- Identify a pacing area in the back of the room. The structured movement may guide the success of getting it out on paper
- Try having the student sit on a large therapy ball, rocking chair or bubble wrap

**'Difficulty Getting Started'** might be due to sensory issues

It is more difficult for individuals with Executive Function difficulties to process language when they are in a large group setting. The student may go into survival mode as he works to filter out the sensory stimuli in the room. He may not be fully 'tuned in' to the teacher's voice, and may then miss important parts of the instructions.

• Try this...

**GETTING STARTED - Sensory**

***'Preferential Seating' is not enough!!***

Make sure you have the student's attention **BEFORE** you give the directions. Say the student's name, or discretely tap on his desk. When you are sure you have his attention, give advance warning before you present the main point.

Remember: Use **VISUALS**  
Our words disappear (Jordan)



**'Getting started'** ...might be due to difficulty with motor planning

*"Even when I am highly motivated, and know what to do and how, I still don't do it. Instead, I sit and think about it or plan exactly what I am going to do in minute detail. I am stuck in inertia."*

Scientifically, inertia appears to be a function of the neurological processes that control a person's ability to shift attention and plan voluntary motor movements. When a person has difficulty in these two areas, the result is often a tendency to stay still.

• Try this...

**GETTING STARTED - Motor planning**

For younger student, provide hand over hand support for the first written word of the assignment. Slowly fade the pressure of your hand on the student's hand. When you feel that the student has begun to write, slowly fade the presence of your hand. Often, this minimal physical prompt will be enough to break the cycle of inertia and allow the student to proceed with the assignment on his own.



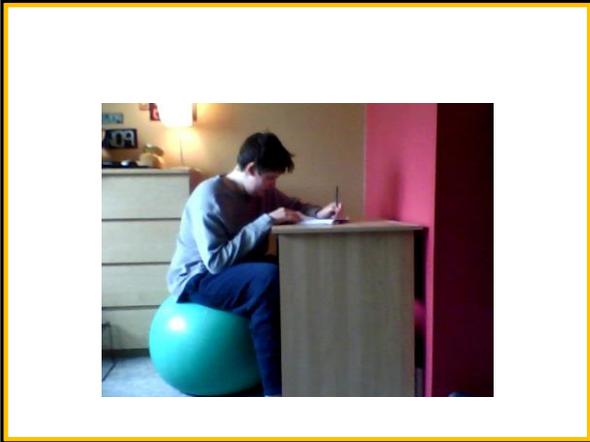
**GETTING STARTED ON WORK - Sensory**

**Change the writing environment**

- Establish a 'private office' area within the classroom where the student can write with reduced distractions – a desk facing wall, with visual barriers works well.

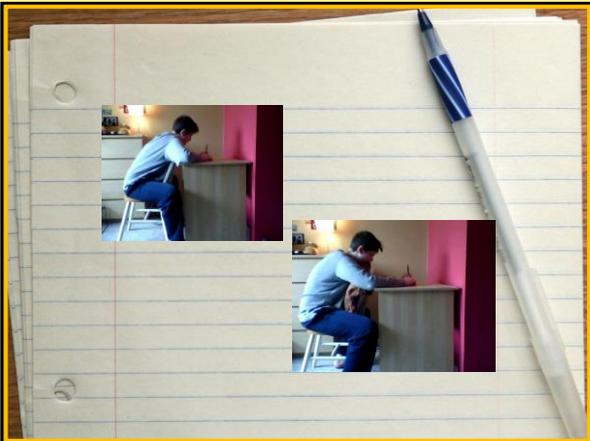


Give the student a clipboard and have him start his writing assignment while sitting in a beanbag chair.



**GETTING STARTED – sensory regulation, continued**

- Try turning his chair around and letting him straddle his legs on each side with the chair back providing calming pressure and support to the front
- Stretchy band around legs of desk

**Getting Started on Work**  
might be due to challenges with organization.

Reluctant writers will do much better both behaviorally and with written output if they know EXACTLY what the teacher wants them to do. Provide the student with a visual support that lists: *What do I do, how much do I do, and what do I do when I am finished.* Be very precise.

• **Try this...**

**Getting Started – Organization**

WHAT DO I DO? 	• Write a paragraph about littering.
HOW MUCH DO I HAVE TO DO? 	• Write 6 sentences. • Use capitals and punctuation. • Each sentence must have at least one adjective.
WHAT DO I DO WHEN I AM FINISHED? 	• Give finished paragraph to teacher. • Then you can read a book of your choice.

**Getting Started** might be due to difficulty with language

Students with ASD have trouble processing language. Temple Grandin tells us that *"...after about three sentences, your voice goes into 'blah blah blah', and I just tune you out!"*

**And talking louder just makes it worse!**

• **Try this...**

**What we say / What they hear**

*"Do you understand?"*  
 The teacher means: Do you understand what I just presented?  
 The student with ASD hears: Are you paying attention?  
 More effective: Tell me what I said, using your own words.

*"This is important."*  
 The teacher means: This will probably be on the test.  
 The student with ASD hears: This is important to my teacher, but not necessarily to me.  
 More effective: Write this down. It will be on the test.

*"Are there any questions?"*  
 The teacher means: Tell me what you do not understand.  
 The student with ASD hears: The teacher is finished talking.  
 More effective: Tell me what I said, using your own words.

**LANGUAGE: Make sure the student really understands what he is supposed to do:**

- Simplify directions. Use less words, slower rate, spaces between directions
- Give a visual example whenever possible
- Break assignment into smaller chunks



**'Getting started' ...might be due to difficulty with language.**

Many students with executive function challenges, even those with very high abilities, have trouble understanding abstract concepts. They have difficulty with instructions such as, "Take out your journal and write about anything you are interested in," or "Write about your favorite season." In order to understand what you want them to write about, they need for the instructions to be very concrete.

**Try this:**

**GETTING STARTED - Language**  
 Assignment: Write a story about your favorite season.



Fill in these blanks:

1. My favorite season is \_\_\_\_\_ (title)
2. In \_\_\_\_\_ the air feels \_\_\_\_\_.
3. In \_\_\_\_\_ the weather is \_\_\_\_\_.
4. In \_\_\_\_\_ I like to \_\_\_\_\_.
5. That is fun because \_\_\_\_\_.
6. Another thing I do in the \_\_\_\_\_ is \_\_\_\_\_.
7. I really like the season of \_\_\_\_\_.

On a different sheet of paper write about your favorite season. Use these words to help you. Make your story seven sentences long.

**Reduce the chance of behavior by helping the older student get started:**

Assignment: Write about someone who made a significant impact on scientific thought.

**Galileo DaVinci Einstein Newton**

1. \_\_\_\_\_ made a very significant impact on scientific thought.
2. \_\_\_\_\_ changed the way people thought about \_\_\_\_\_.
3. Previously, people had thought \_\_\_\_\_.
4. But this scientist had a different idea. It was \_\_\_\_\_.

*Write at least 5 paragraphs about this scientist on a separate sheet of paper. Use these sentences for your first paragraph.*

**Getting started – try technology**

**SOLO Software: Draft Builder**

*Graphic organizer, built on brainmapping. Brainstorm ideas, then organize them*





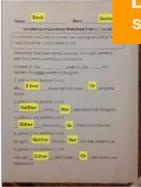
## READ AND WRITE GOLD

- Allow brain storming with speech to text
- Support editing and revising with text to speech
- Support Spelling and working memory challenges with word prediction
- [Read & Write Gold](#)

## DocHub

- Support "I Hate To Write" anxiety, working memory and grapho motor needs with the DocHub app or SnapType
- [DocHub in the classroom](#)

**DocHub**

## REFUSING TO WRITE

**Teacher Concern: "When it's time to write, he won't even try!"**

*Indiana Academic Standards for Writing:*

1. Write effectively for a variety of tasks, purposes, and audiences.
2. Demonstrate the ability to write legibly
3. Develop writing skills by writing for different purposes, and to specific audiences and people
4. Produce coherent and legible documents by planning, drafting, revising, editing, and collaborating with others
5. Build knowledge about the research process and the topic under study by conducting short research
6. Demonstrate command of the conventions of standard English

### Indiana Academic Standards for Writing: Writing Genres – *Persuasive, Informative, and Narrative Writing*

K	1	2	3	4	5
Use words and pictures to provide logical reasons for suggesting that others should follow a certain course of action	Write logically connected sentences to show beginning, middle, end. Include topic sentence, supporting details, conclusion	Write logical paragraph for variety of purposes, with introduction, multiple reasons / details, and concluding sentence	Write a variety of compositions with intro paragraph, well sequenced supporting details, clear transitions, conclusion	Write a variety of compositions, with intro paragraph / topic sentence. Supporting ppghs, each with TS and supporting details w/references and transition words. Conclusion	Same, with qualitative and quantitative facts to support. Appropriate organization in each ppgh. Concluding ppgh that summarizes all.

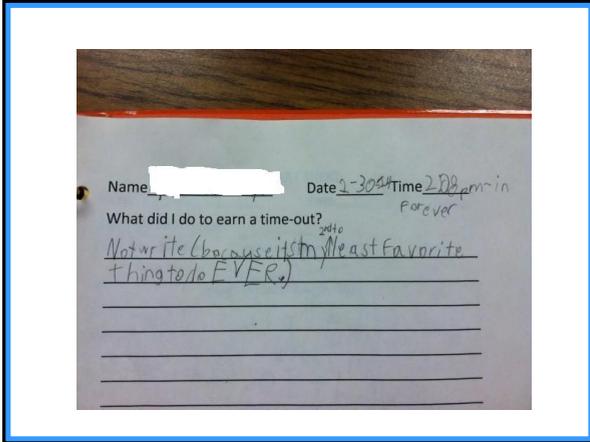
## Refusing to write...

**why it happens, and what a teacher can do to help**

Consider the four main areas of difficulty:

- Language
- Organization
- Sensory
- Motor

**MAKE SURE YOU HAVE SET THE STUDENT UP FOR SUCCESS!!**



### A writing experiment for teachers



1. Hold your pencil in your non dominant hand.
2. Write two sentences about what you did last night.
3. Reactions?



**'Refusing to write'... might be due to difficulty with sensory motor issues**

**All of our senses are involved in the writing process, but three sensory systems are crucial for writing - tactile (touch), vestibular (balance), and proprioceptive (awareness of body's position in space)**

### Tactile/Touch



- Our first sensory system to function
- We are first nourished, calmed and become attached to others through our sense of touch
- Tactile receptors are found throughout the skin
- Protective-fright/flight response
- Discriminative-quality

### Proprioception

- Housed along muscle fibers and tendons that connect muscle to bone
- Gives us our awareness of body position/where are body is in space
- Automatic adjustments of body position
- Postural stability



### Signs of Poor Proprioception

- Stiff and poor coordination
- Clumsy/falls
- Frequent falls
- Runs into furniture, walls, people, etc.
- Falls out of chair
- Easily frustrated
- Squirms, especially when seated
- Slow to established handedness
- Often breaks pencil and / or pencil lead
- Difficulty with stairs
- Foot slap when walking or toe walking

## Vestibular

- Receptors within the inner ear
- Affects our gravitational security
- Coordinates the movement of eyes/visual spatial, head and body position
- Maintains muscle tone



## Vestibular

- Enables a child to hold his head up against gravity
- Has an effect on being able to print and write
- Strong relationship with auditory system/language

## Evidenced Based Practice: Exercise

- Currently six studies have found that students who participated regularly in a structured exercise routine with a warmup and cool-down, demonstrated reduced (challenging) behaviors, increased positive behaviors, improved motor skills, and improved physical fitness.
- A daily program of aerobic exercise in combination with strength training and stretching was completed.
- Cannella-Malone, Tullis & Kazee (2011) implemented two, 20-minute exercise routines.
- They included a variety of exercises, including riding scooter boards, jumping on a trampoline, jogging, stretching, and arm curls with weights twice a day.
- Exercise was performed at the beginning of the day and after lunch.
- The students also performed 1-minute exercise breaks 1 per hour that involved yoga poses or jogging in place.
- This routine, performed on a daily basis, drastically reduced a variety of forms of negative behaviors to zero or near-zero levels.

## Move To Learn

**Aerobic exercise at target heart rate:**

- Improves concentration
- Improves impulse control
- Improves attention
- Increases Motivation
- Helps Mood and Anxiety Regulation
- Combats depression/Increase self esteem
- Reverses learned helplessness
- Combats toxic effects of stress hormones
- Decreases fatigue



**Dr. John Ratey Associate Clinical Professor of Psychiatry at Harvard Medical School**

- "Exercise is like taking a little bit of Prozac and a little bit of Ritalin because, like the drugs, exercise elevates these neurotransmitters."
- "When you exercise, at the cellular level the brain is drenched with serotonin, glutamate, norepinephrine, dopamine and growth hormones, all wielding a powerful influence, like Miracle-Gro for the brain,"



## Exercise Greatly Impacts Learning

- Prefrontal Cortex: Major Role In Executive Functioning
- The CEO
- Planning
- Organizing
- Learning from mistakes
- Maintaining focus
- Working Memory
- Initiating or delay response



## The Research is Impressive: British Journal of Sports Med

- 19 studies 586 kids, teens and young adults found short 10 to 40 minute bursts of exercise led to an immediate boost in concentration and mental focus, improving blood flow to brain.
- Further evidence 20 min before taking a test



## 2009 Texas Cooper Study

2,600,000 students

.High levels of physical fitness are associated with better academic performance regardless of demographics: race, ethnicity, income or school

.Higher level of attendance

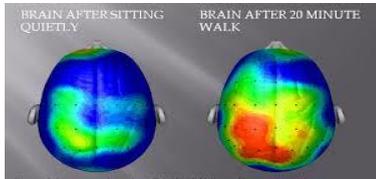
.Higher level of fitness was associated with fewer disciplinary incidents. The research looked at the number of incidences associated with drugs, violence and truancy

## Sensory in Evidence-Based Practices: Exercise

### Walking for Learning

Brain before a 20 minute walk

Brain after a 20 minute walk



## Exercise and Learning

- Walking 20 min. on a treadmill or just walking scored 15% better than with an improved ability to take test
- Behavior-in first four months-all kids are moving 45 min a day- discipline plunged 63% and 85% dropped in another district
- Attention all improved
- Aggression decreased
- Move to Learn videos [movetolearn.org](http://movetolearn.org)
- Time To Move!



## Refusing to Write

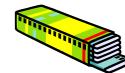
Set your student up for success by addressing sensory needs.

1. Structured movement activities
2. PUSH, PULL, LIFT and CARRY activities built into the school day
3. To reduce postural fatigue, offer variety of seating options: chair, ball, beanbag seat, chair with arms, lying on floor, standing
4. Let the student choose his writing tool: pencil, pen, gel marker, crayon, various pencil grips.



## “Refusing to Write” might be due to sensory regulation needs

- For the tired friend rev up his system with a brisk walk /whole class benefits
- Whole class You Tube Dance Video-”Just Dance Kids” search
- Follow with a big muscle push, pull, lift or carry job
- Seat on an air cushion or bubble wrap
- Chewing gum is great for sensory regulation



**Refusing to write might be due to difficulty with language**

Sequential thought is often a big challenge for students with executive function challenges. Just as they have difficulty organizing their supplies, they also have trouble organizing thoughts into logical sequence and order.

- Try this...

**REFUSING TO WRITE - Language**  
 Provide a visual support to help teach sequencing skills.  
**Directions:** Use the numbers on the picture to help you think of ideas for your story.



**Refusing to Write: Make a Timeline to Help teach Sequencing Skills**  
*Assignment: Write a report on Martin Luther King.*

The student tells the teacher what he knows about the subject. For each fact that the student relates, the teacher writes a keyword on the timeline. When the student has related enough items for a sequential report, the teacher numbers the keywords. Then, in paragraph form, the student writes a sentence for each keyword.

Atlanta	Michael	Pastor	Civil Rights	Nonviolence	Montgomery	Dream	Memphis
1	2	3	4	5	6	7	8

**Refusing to Write - might be due to difficulty with language and imaginative thought.**

Teach your student to visualize and notice details

Show the student 3 engaging pictures. Ask him to verbally tell you about each picture. Praise him for his ideas, then ask him which one he chooses to write about. Review what he has said about the picture. Then remove the other pics.



**Refusing to Write - might be due to difficulty with organization.**

Set your student up for success by building a topic library:

Topic	First Sentence
Computers	I know how to do lots of things on the computer.
Baseball	This summer I played on the Sox baseball team.
Trains	I rode a train to my grandma's house.

**REFUSING TO WRITE - Organization**

Provide a Story Frame – to help students learn to transition from one idea to the next.




STORY FRAME

In this story the problem began when \_\_\_\_\_.

After that, \_\_\_\_\_.

Next, \_\_\_\_\_.

Then, \_\_\_\_\_.

The problem is finally solved when \_\_\_\_\_.

The story ends \_\_\_\_\_.

**Indiana Academic Standards for Writing:**  
**Writing Process – Planning, Drafting, Revising, Editing, Collaborating**

K	1	2	3	4	5
With support, revise and edit; spelling and capitalization of first words. Use technology to produce and publish writing	Develop and org ideas re topic; Revise /edit: sentence structure, caps, punct, word choice. Peer review; Use tech to produce and publish writing	Develop draft; Revise /edit: org, sent structure, wd choice, conventions; Peer review; Use tech to produce and publish writing	Develop draft. Revise /edit org, sentence structure, wd choice, conventions, quality of ideas, organization. Use tech to produce and publish writing	Develop draft. Revise /edit org, sentence structure, wd choice, conventions, quality of ideas, organization. Use tech to produce and publish writing	Develop draft. Revise /edit org, sentence structure, wd choice, conventions, quality of ideas, organization. Use tech to produce and publish writing

**"REFUSING TO WRITE"- Organization**

Many of our students with EF differences are 'one track thinkers'. Their brains usually focus intensely on one thing at a time. When we ask a student to edit his work, we are asking him to consider MANY things – content as well as structure. Students will be much more successful if we give them a scaffold.

**Try this:**

**WRITING AND EDITING – Organization**

COVER THE PAPER SO ONLY ONE NUMBER SHOWS AT A TIME

1	<b>Check for capital letters.</b> • First words in sentences • Proper nouns – people, places, dates, etc.	I did it
2	<b>Check for punctuation (. ? ! , “ )</b> •At the ends of sentences •After abbreviations like Mr. and Dr.	I did it
3	<b>Check for spelling.</b> •If you aren't sure, check the dictionary or Word Wall	I did it
4	<b>Check for grammar.</b> •Make sure you didn't leave out little words like 'a', 'an', 'the', 'as', 'but'.	I did it
5	<b>Check to make sure your writing makes sense.</b> •Touch each word as you read it. Does it make sense?	I did it
6	<b>My teacher also wants me to check _____.</b>	I did it

**"Refusing to Write"...might be due to difficulty with sensory issues.**

- **Sensory / Perfectionism:** Students with EF challenges are often perfectionists. They may spend lots of time erasing or correcting work that isn't perfect to their way of thinking. They often become anxious or angry if their work doesn't look right to them.

• **Try this:**

**REFUSING TO WRITE - Sensory**

**Before writing, do sensory motor exercises**

1. Rub My Hands On My Legs-10 times. 
2. Push My Hands Together & Release 10 times. 
3. Open and close Fingers 10 times. 
4. Place my hands on the chair seat, then raise my bottom off the seat 10 times. 
5. Deep Breathe in slowly through my nose, then blow out through my lips. Repeat 5 times. 

**'REFUSING TO WRITE' might be due to difficulty with motor skills.**

- **Gross and fine motor skills:** Holding a pencil can actually be painful for many of our reluctant writers. When that discomfort is added to the challenge of coordinating all the muscle groups needed to write, students often give up or melt down.

• **Try this...**

**"REFUSING TO WRITE"** might be due to challenges with Motor Skills

- Explore pencil grips/writing tools: Try practicing for short periods in order for the student to "give it a try" and avoid frustration
- Try taking turns with the physical component of writing, you write a sentence and then he writes a sentence
- Dictation/ After dictation the student recopies or types what he has dictated to you (Chunk down task)
- Try using a portable word processor, laptop, or tablet (android or ipad)



**Use Technology**



- Reduce the motor requirement of writing by using a word prediction program. The student types the first three letters of a word, then selects the correct word from a drop down menu. The computer reads the word out loud, so the student can hear what he has written. The student only needs to make a few keystrokes to produce the word he wants, thus enabling faster task completion, less frustration, and better sentences



**WRITING ILLEGIBLY**

*Teacher Concern: "His writing is horrible! I can't read it. The words are large, and they all run together. It's just not legible."*

*National Common Core Academic Standards for Writing: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.*

**Indiana Academic Standards for Writing:**  
**Handwriting – Demonstrate ability to write legibly**

K	1	2	3	4	5
Write most cap and lower case letters, with spacing in words	Write all cap and Lower Case letters with spaces between letters, words, sentences	Form letters and use spacing for letters, words, and sentences so others can read	Write legibly in print and cursive with appropriate spacing	Write legibly in print and cursive, with appropriate spacing so others can read	Same
Write left to right, top to bottom	Same	Same	Same	Same	Same

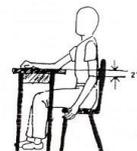
**"Writing Illegibly"**

**Why it may be difficult and what a teacher can do to help**



- Students with an EF difficulty are frequently challenged with many of the components that are needed for functional handwriting: Sensory processing, neuromuscular: muscle tone, strength, postural control, motor skills involving being able to cross the midline, bilateral integration and motor planning, poor fine motor coordination, poor visual perception as well as cognitive components

**Check desk and chair size**



### “Writing Illegibly”

May be due to poor visual motor skills

- Mayer and Calhoun (2003) found that graphomotor problems were significantly higher for students with an ASD regardless of age or IQ and that this had a serious impact on their written expression.
- Myles and colleagues (2003) compared the written expression of 16 students with Asperger syndrome with students without disabilities. They found that those with an ASD demonstrated a decrease in legibility, complexity and number of words used during handwriting tasks

### Writing Legibly Visual Perception

- A cognitive skill: not a learned skill
- Brain's ability to interpret, analyze and give meaning to what is seen
- If perception is incorrect it effects writing, reading, math, comprehension, social and more
- Some Individuals with autism may experience severe perceptual problems. Stress from lighting, colors, patterns and contrast bombard the system
- 80% of what is learned is visual

### “Writing Legibly” Visual Perceptual Strategies to support writing

- Reduce fluorescent lighting
- Highlight or darken lines
- Raised lined paper
- Use of an index card or blank paper to cover extra lines
- Use of colored pencils
- Slant board/three ring binder



### Writing Illegibly Support

- Color overlays used when copying from a text book
- Green dot or green line down the left side of paper
- Red dot or line down right side of the paper
- Graph paper- one letter in each box and spacing box
- Spacing tools
- When modeling, model big spaces
- When keyboarding consider background color

Writing is so much more than holding a pencil

- Remember that gross motor skills support fine motor skills
  - Encourage seat push ups, wall push ups big muscle work
- Tummy time on elbows while coloring, puzzles, reading



### **Poor Pencil Grasp**

- For younger students try practicing just holding the pencil correctly (not yet on paper), drawing shapes or letters in the air. (Mom and Dad in the front seat, I'm in the back seat.)
- Then the student can practice printing his name with correct positioning
- Then try practicing with small pieces of crayon or chalk. Use primary crayons, pencils, golf pencils or markers. (for young students use a tool that fits the size of their hand.)
- **Allow daily opportunity to practice at a large vertical chalkboard to develop the skill side of the hand**
- Slanted writing surface: three ring binder/slant board

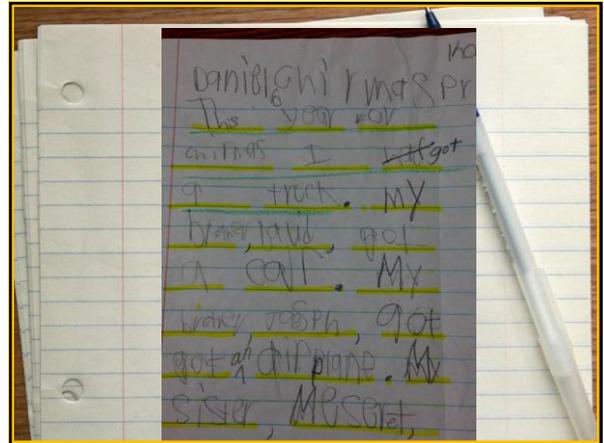
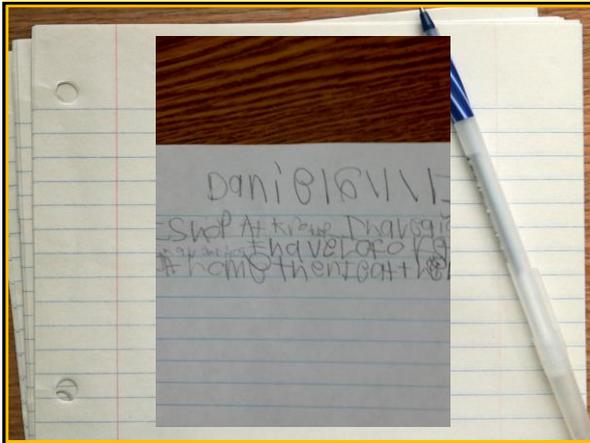
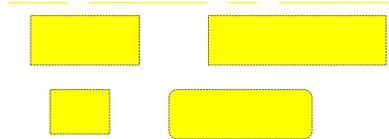


**"Writing Legibly" Visual motor**

- If the student is printing too small then your student may be holding his pencil very close to the tip of the pencil. A small visual/tactile cue may help. Wrap a small rubber band or piece of masking tape on the end of the yellow of the pencil to help to see where his fingers and thumb should be.
- When writing is too large your student may be using "big muscles" to form letters instead of smaller muscles intended for writing: Look at positioning: may try "the pencil grip" cut off triangular end /with rubberband near tip, try Twist N' Write pencil, Grotto Pencil Grip

**"Writing Illegibly": Letter size and placement**

Give visual cues to assist: provide yellow lines or boxes the size of the words and letters. He forms the words on the yellow line or box.



**Writing is better with two hands**



- If your student is not stabilizing his paper :Before writing try
- Wall pushups,
  - Rubbing hands together,
  - Windmill movement
  - Brain Gym: Standing then raise one knee and touch knee to opposite elbow then alternate movement 10 xs.
  - For short periods try having the student stand and hold the paper against a wall while writing. He will need to use his other hand to stabilize the paper or it will fall to the floor.
  - Give him a visual cue that represents "hold my paper still with my helper hand."
  - Provide extra practice at activities that require two hands

### Bilateral Skills

Hold the paper against a wall while writing for short periods.



### ***If it's not working, ask yourself:***

- **Setting (sensory)**: Is the room noisy? Is there clutter in his workspace? 
- **Seating (motor)**: Is he uncomfortable? Does he need a different place to write? 
- **Task (organization)**: Is the task too big? Do you need to break it down into smaller chunks? 

### ***If it's not working, continued:***

- **Timing (organization)**: Is the wait time too long between directive / writing / reinforcement? 
- **Directions (language)**: Was there too much talking? Does he need a prompt? 
- **Attention (sensory)**: Did you get his attention before giving the task? 