

Dyslexia Part 1

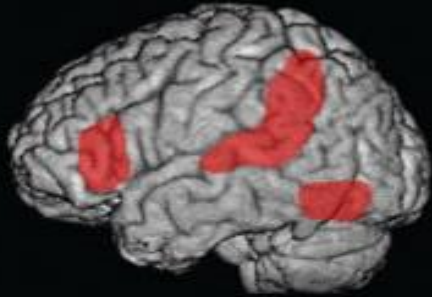
Presented by Justin Sims

justin@ssdla-aem.org

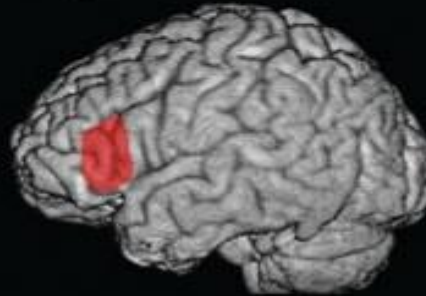
Full presentation at: <http://bit.ly/2uflwKw>

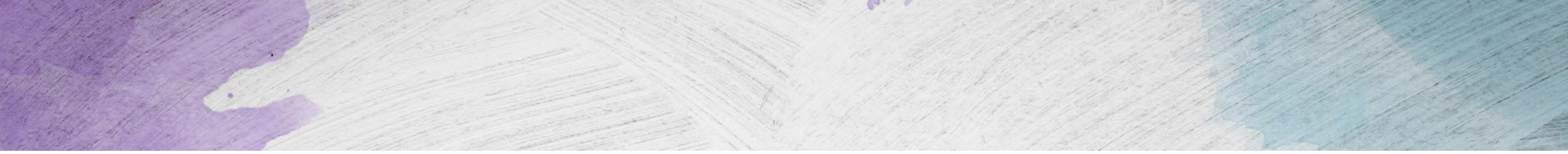


Typical readers




Dyslexic readers



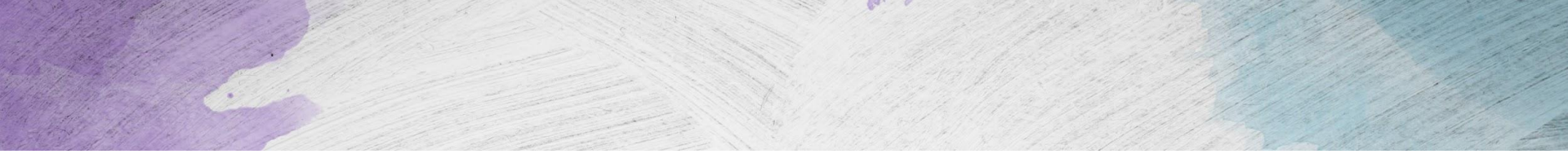


Dyslexia is associated with "with difficulty in processing the *orthography* (the written form) and *phonology* (the sound structure) of language." While no specific area of the brain controls all reading functionality, neurologists have paid close attention to how the brain processes grapheme-phonemes, which are the combination of written letters and sounds.

- 
1. Decrease activity in the occipito-temporal cortex, which contains the visual image of the word when we look at it.
 2. Decrease activity in both the temporo-parietal and inferior frontal cortices, which process the "phonological and semantic processing" to decode words
 3. The inferior frontal cortex (the only one showing up on this dyslexic brain) is involved in verbal speech production.

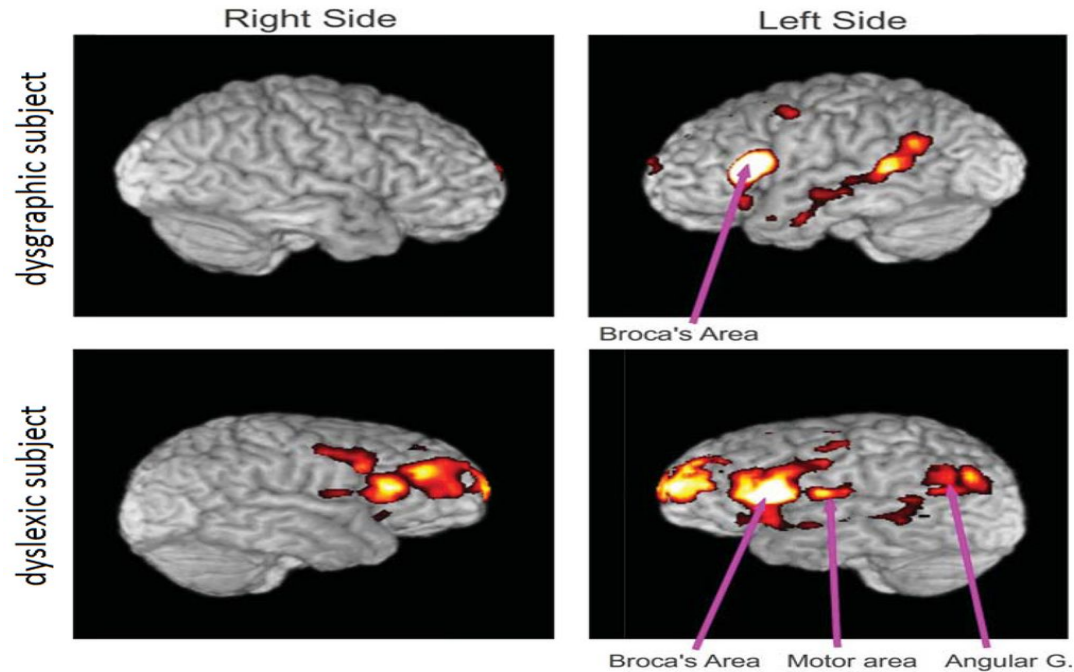
All of these areas work in unison for our strong readers. FMRI scans indicate the areas discussed in bullets 1 and 2 to have little activity in those with dyslexia; therefore, treating this disability as primarily a "phonological processing" disorder.

"Dyslexia and the Brain – International Dyslexia Association." 2016. 10 Oct. 2016
<<https://dyslexiaida.org/dyslexia-and-the-brain-fact-sheet/>>



We know that Dyslexia is a neurological condition primarily focused on areas of the brain that decode and process graphemes. Some may struggle to understand spoken words as well. So dyslexia may exhibit different struggles of visual and auditory processing to varying degrees according to the individual. IQ is not affected!

Dyslexia vs Dysgraphia



1. A student with dysgraphia doesn't necessarily compensate by using the right temporal lobe as a dysgraphic student would as depicted by the 1st column. Therefore the label "right brained" would not correctly apply.
2. The 2nd column scans indicate decrease use of the Angular Gyrus associated with spatial cognition, writing, and memory retrieval.
3. The lower section of the motor cortex also demonstrates less activity than students with dyslexia

Purcell JJ, Turkeltaub PE, Eden GF, Rapp B (2011). "Examining the central and peripheral processes of written word production through meta-analysis". Front Psychology. 2: 239.

Research shows brain differences in children with dyslexia and ..." 2015. 10 Oct. 2016

<<http://www.washington.edu/news/2015/04/28/research-shows-brain-differences-in-children-with-dyslexia-and-dysgraphia/>>

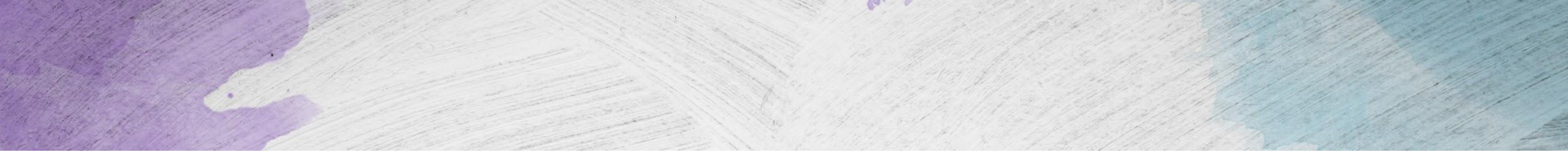


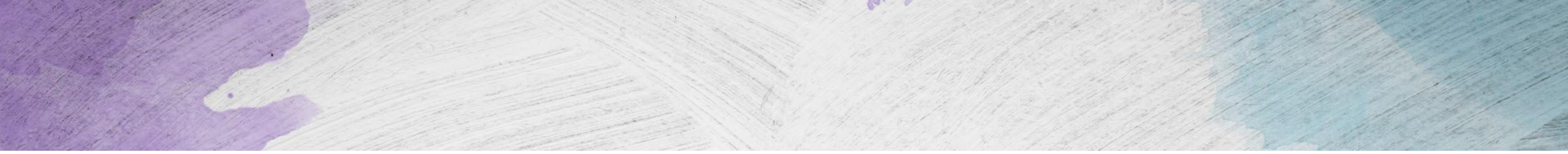
Dysgraphia Definition

There is currently no special education category for Dysgraphia. This category only exist in the fields of neurology and psychology.

Dysgraphia is a "neurological disorder characterized by writing disabilities" including poor handwriting, word choice, and spelling. This disability breaks down into two categories:

1. Motor Dysgraphia- Common characteristics include poor dexterity, fine motor skills, muscle tone, and is associated with clumsiness. legibly clear writing is still possible, but it requires extreme effort from the student. Finger tapping speeds and keyboarding skills are often below average. Oral spelling is normal.
2. Spatial Dysgraphia- Both copied work and written expression is often spontaneous in syntax and structure often reading as gibberish. Finger tapping speeds and keyboarding skills are within the average range suggesting motor skills are not directly impacted.

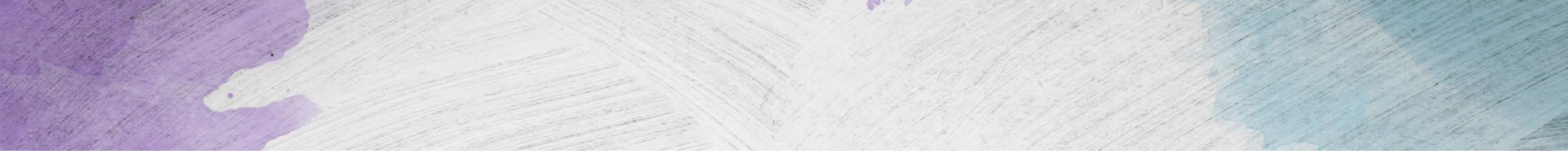
- 
1. What to teach during interventions
 2. How to teach it (multi sensory modalities)
 3. How technology can help in the classroom



Phonics- Connecting sounds to the alphabet/print (memorizing 26 letters and 44 sounds).

Most dyslexic students do achieve this level. May mix up i,e,a,o,u k/g d/t..etc

occipito-temporal cortex and temporo-parietal



Phonological Awareness- For one to be aware of similarities, differences, and subtleties of sound in the broadest sense.

Includes Rhyming, Hearing Syllables, Singing, and Alliteration

Temporo-parietal and inferior frontal cortices

“Sh” + “oo”
Reads as “Shoe”

Phonemic Awareness

Phoneme- smallest unit of sound associated with 1 or more letter combinations.

Phoneme Segmentation- the skill/ability to break words into their individual Sounds. Includes beginning, middle, and ending sounds.

Blending- combining segmented phonemes to create words.

Phonemic Awareness- the ability to recognize and demonstrate the above

Spelling

Phonological Awareness



Phonemic Awareness



Phonics

- **Hear correctly**
- **Break into individual sounds**
- **Connect to alphabet using rules**

Reading

Phonics



Phonemic Awareness



Phonological Awareness

- **Connect sounds to alphabet using rules**
- **Blend phonemes together**
- **Listen if the word makes sense**

We are all b
Sometimes



nd us.



Not a 1:1 correspondence to letters and sounds

CH- Ch/Sh/Kh

1. Meet /mit/

Neat /nit/

2. Sky /k/

Kite /kh/

3. Input

Input

4. Immigration
Meet

Emmigration
Meat

1. Minimal Pair- 1 sound difference -meanings
2. Complementary Distribution- beginning of a word is /kh/ middle is /k/
3. Free Variation- n & m can switch sounds at beginning or middle based on word meaning (good luck)
4. Final word meaning example

<https://www.slideshare.net/matrice107/28-rules-for-english-spelling>

https://en.wikipedia.org/wiki/Allophone#Rules_for_English_Consonant_Allophones

List of spelling rules that dyslexic students struggle with the most

Some of the most imprv arinya artic nae the yaara egt. They coie those of er go in eg, a conie in the forenya part of afia. The egt pahu constrast huge beings in the shape of pemid to house sen blood ale' they gurthe. Pahu harne egt sokty. They done kings, but the egt also dure that pha had powers tuulo' the Seldarine. The pahu nowe that the pemid be sen eska ale' ron gurthe and quante sen yassen furn it, gold jewlar, and even pets. Sii' the yaara eg society has olvanne, but the pemid naa sal' utue in eg.

Reading at 50% Accuracy

Some of the most imprv arinya artic were the yaara egtn. They coie those of er go in eg, a conie in the forenya part of afia. The egtn pahu constrast huge beings in the shape of pemid to house sen bodies ale' they gurthe. Pahu harne egtn sokty. They were like kings, but the egtn also dure that pha had powers from the gods. The pahu thought that the pemid be sen eska after they gurthe and filled sen yassen furn it, gold jewlar, and even pets. Sii' the yaara eg society has olvanne, but the pemid naa sal' utue in eg.

Reading at 60% Accuracy

Some of the most imprv early artic were the yaara egt. They lived those of er go in eg, a conie in the northern part of afia. The egt pahu constrast huge beings in the shape of pemid to house sen bodies after they gurthe. Pahu harne egt sokty. They were like kings, but the egt also dure that pha had powers from the gods. The pahu thought that the pemid be sen eska after they gurthe and filled them with furn it, gold jewelry, and even pets. Now the yaara eg society has olvanne, but the pemid are still there.

Reading at 70% Accuracy.

egtn pahu constrast huge beings in the shape of pemid to house sen
bodies after they gurthe. Pahu ruled egtn society. They were like
kings, but the egtn also believed that pha had powers from the gods.
The pahu thought that the pemid would be their home after they
died and filled them with furn it, gold jewelry, and even pets. Now
the yaara eg society has olvanne, but the pemid are still found in eg.

Reading at 80% Accuracy (Gets us in
the ball park, but not enough)

pyramids to house sen bodies after they gurthe. Pahu ruled Egyptian society. They were like kings, but the Egyptians also believed that pha had powers from the gods. The pahu thought that the pyramids would be their home after they died and filled them with furn it, gold jewelry, and even pets. Now the yaara Egyptian society has olvanne, but the pyramids are still found in Egypt.

Reading at 90% Accuracy (Could still be difficult if this was an entire passage)

buildings in the shape of pyramids to house their bodies after they died. Pharaohs ruled Egyptian society. They were like kings, but the Egyptians also believed that pharaohs had powers from the gods. The pharaohs thought that the pyramids would be their home after they died and filled them with furniture, gold jewelry, and even pets. Now the ancient Egyptian society has vanished, but the pyramids are still found in Egypt.

Reading at 100% Accuracy

MULTISENSORY TEACHING

VISUAL

AUDITORY

TACTILE

KINESTHETIC

SEQUENTIAL

SIMULTANEOUS

**REFLECTIVE
LOGICAL**

VERBAL

INTERACTIVE

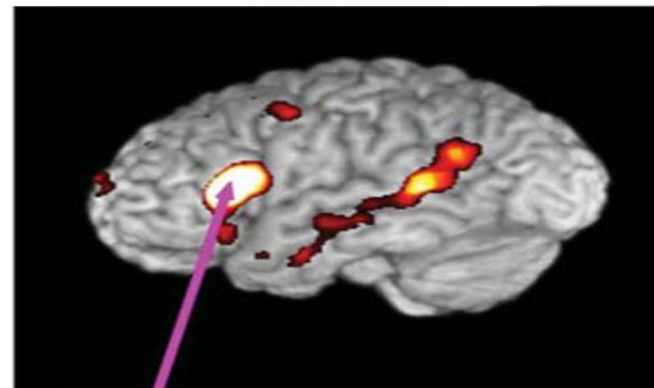
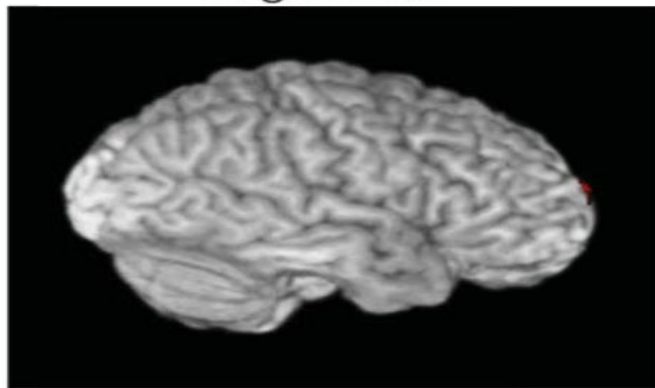
**INDIRECT
EXPERIENCE**

**DIRECT
EXPERIENCE**

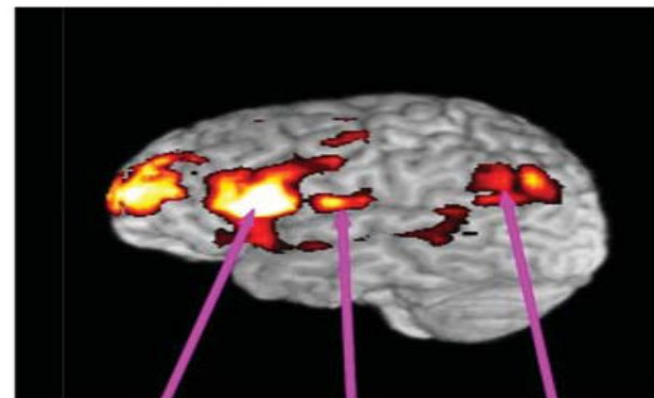
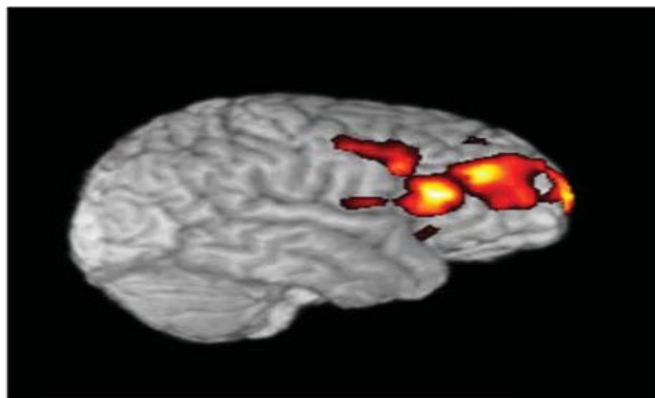
**RHYTHMIC
MELODIC**

Dysl

dysgraphic subject



dyslexic subject

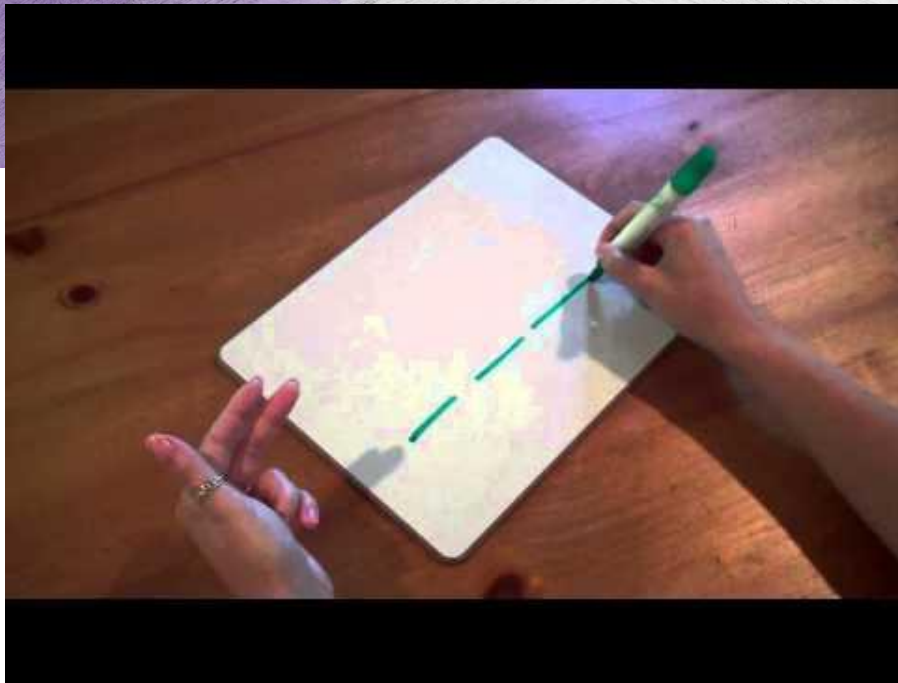


Broca's Area

Broca's Area

Motor area

Angular G.



ri
/s
ro



How it helps

1. Motor (muscle memory)
2. Visual representation
3. Structured/Routine
 - Finger for every phoneme
 - Group fingers together for
 - Listening/Speaking
4. Concrete (less stress on working memory)
 - Use a 2nd hand if you have
 - Keep age appropriate (challenging- not socially acceptable)



Blend into 'light'

What it teaches

1. Phonological Awareness
2. Phoneme Segmentation
3. Phonemic Rules
4. Phonological Rules

Retrofitting the environment



INSPIRED BY A PUBLIC SCHOOL STUDENT WITH DISABILITIES



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CLEARING A PATH
FOR PEOPLE WITH SPECIAL NEEDS
CLEARING THE PATH FOR EVERYONE!

Why not structure classroom to contain different modalities of learning and expression from the start?

<https://goo.gl/hc6DZY>



**DESIGNED
FOR ALL**

RETROFITTED



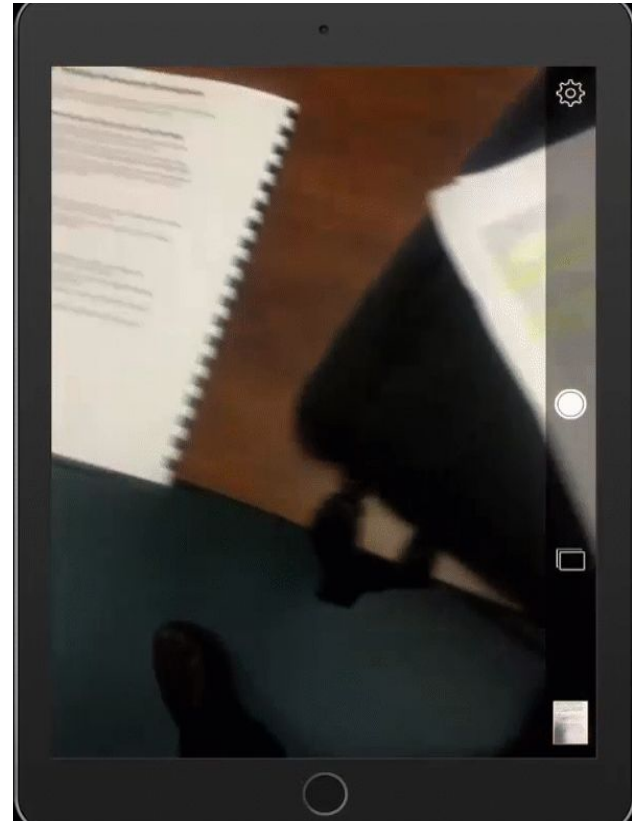
Text to Speech

- “Text-to-speech positively affects reading comprehension for individuals with reading disabilities”
 - No bad practice!
 - Socially acceptable
- Greatest academic achievements in subject areas of social studies and science (Not related to comprehension findings)

hd Related Read-Aloud Tools Improve Reading Comprehension for Students With Reading Disabilities?” A Meta-Analysis Sarah G. Wood, MS, Jerad H. Moxley, PhD, Elizabeth Tighe, PhD, Richard K. Wagner, PhD Journal of Learning Disabilities First published date: January-23-2017 10.1177/0022219416688170

OCR iPad APPs

- Claro Scanpen (Paid)
- Prizmo (Paid)
- Kurzweil Firefly (Sub)



Text to Speech with Chrome Browser

- Read & Write for Google (Freemium)
- Kurzweil Read the Web (Paid)
- Speakit! (FREE)
- AT Toolbar (FREE)
- iSpeech (FREE)



<https://chrome.google.com/webstore>

Though Hale was a New Englander by birth, he had not the normal New England suspicion of entertainment as an educational ingredient; and he did not scruple to amuse. He was almost indecently readable. He never hesitated to lighten musical instruction with diversion and wit. He knew much besides music; and he was able to peptonize for the reader his vast and curious erudition. He could tell you about the maceration of Oriental women, and what action is described by the word "tutumpomponer", and who invented the first chess-playing automaton, and how locomotive engines are classified, and what Pliny said concerning the bird called penelope. He knew all about the various editions of the singular *Commentaires sur les epistres d'Ovide* by Claude Gaspar Bachet, Sieur de Mezziac, in which the parentage of Ulysses is discussed. He could tell you why the river Ebro bears that name; and what Louis XIV ate for supper—which, you may like to be reminded, often consisted of four plates of different soups, the whole of a pheasant, a partridge, a heaped-up plate of salad, two huge slices of ham, mutton stewed with garlic, and a plate of pastries topped off with fruit and hard-boiled eggs. As for all the other things that Hale knew, you must turn to his writings if you would appreciate their range and number. [xviii]

And all this fantastically varied learning—which not only seemed boundless in extent, but which was also incredibly exact and circumstantial—adorned a general culture that was nourishing and humane, and a specifically musical culture which conceived no relevant fact as inconsiderable, no anecdote unimportant, no human aspect unrevealing. The average programme note is a deadly and a stifling thing; but these amazing annotations, traversing all history and the ceaseless tragedy-comedy of life, assure us that a programme note may sometimes, if an artist has contrived it, be more rewarding than the music that occasioned it.

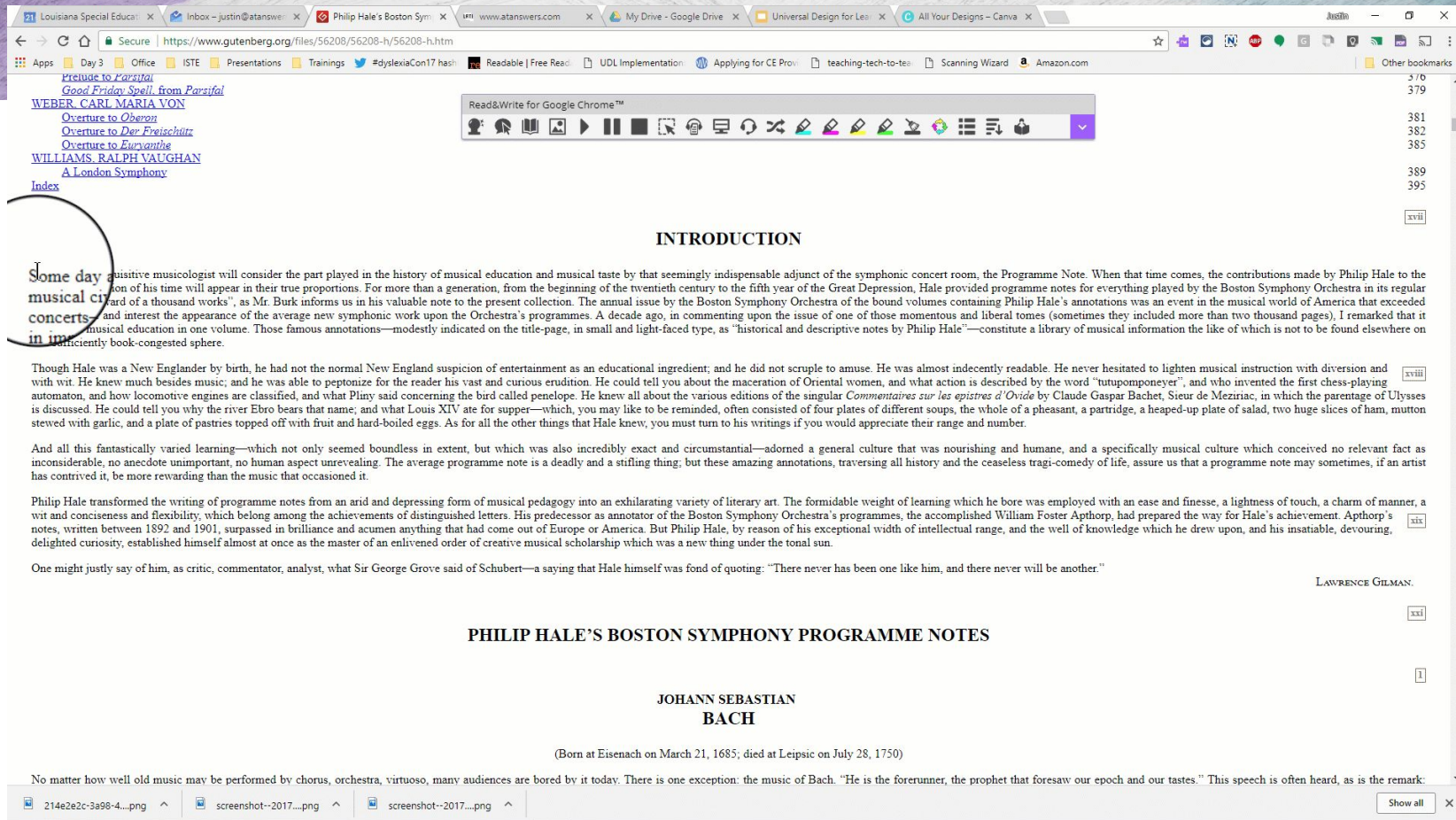
Philip Hale transformed the writing of programme notes from an arid and depressing form of musical pedagogy into an exhilarating variety of literary art. The formidable weight of learning which he bore was employed with an ease and finesse, a lightness of touch, a charm of manner, a wit and conciseness and flexibility, which belong among the achievements of distinguished letters. His predecessor as annotator of the Boston Symphony Orchestra's programmes, the accomplished William Foster Apthorp, had prepared the way for Hale's achievement. Apthorp's notes, written between 1892 and 1901, surpassed in brilliance and acumen anything that had come out of Europe or America. But Philip Hale, by reason of his exceptional width of intellectual range, and the well of knowledge which he drew upon, and his insatiable, devouring, delighted curiosity, established himself almost at once as the master of an envied order of creative musical scholarship which was a new thing under the tonal sun. [xix]

One might justly say of him, as critic, commentator, analyst, what Sir George Grove said of Schubert—a saying that Hale himself was fond of quoting: "There never has been one like him, and there never will be another."

LAWRENCE GILMAN.

**JOHANN SEBASTIAN
BACH**
(Born at Eisenach on March 21, 1685; died at Leipsic on July 28, 1750)

No matter how well old music may be performed by chorus, orchestra, virtuoso, many audiences are bored by it today. There is one exception: the music of Bach. "He is the forerunner, the prophet that foresaw our epoch and our tastes." This speech is often heard, as is the remark:



Highlighting/Line Tracking/Contrast

Highlighting

- **Multi-Highlight (Free)**
- **Lumio (FREE)**
- **Read & Write for Google (Freemium)**

Line Tracking

- **Read & Write for Google (Freemium)**
- **Beeline Reader (Free)**
- **Mercury Reader (Free)**
- **Readsy (FREE -ipad & Chrome)**

Contrast

- **Beeline Reader (FREE)**
- **AT Toolbar (FREE)**

CHAPTER I

Lucy Looks into a Wardrobe

Once there were four children whose names were Peter, Susan, Edmund and Lucy. This story is about something that happened to them when they were sent away from London during the war because of the air-raids. They were sent to the house of an old Professor who lived in the heart of the country, ten miles from the nearest railway station and two miles from the nearest post office. He had no wife and he lived in a very large house with a housekeeper called Mrs. Macready and three servants. (Their names were Ivy, Margaret and Betty, but they do not come into the story much.) He himself was a very old man with shaggy white hair, which grew over most of his face as well as on his head, and they liked him almost at once; but on the first evening when he came out to meet them at the front door he was so odd-looking that Lucy (who was the youngest) was a little afraid of him, and Edmund (who was the next youngest) wanted to laugh and had to keep on pretending he was blowing his nose to hide it.

As soon as they had said good night to the Professor and gone upstairs on the first night, the boys came into the girls' room and they all talked it over.

"We've fallen on our feet and no mistake," said Peter. "This is going to be perfectly splendid. That old chap will let us do anything we like."

"I think he's an old dear," said Susan.

"Oh, come off it!" said Edmund, who was tired and pretending not to be tired, which always made him bad-tempered. "Don't go on talking like that."

"Like what?" said Susan; "and anyway, it's time you were in bed."

"Trying to talk like Mother," said Edmund. "And who are you to say when I'm to go to bed? Go to bed yourself!"

"Hadn't we all better go to bed?" said Lucy. "There's sure to be a row if we're heard talking here."

"No there won't," said Peter. "I tell you this is the sort of house where no one's going to mind what we do. Anyway, they won't hear us. It's about ten minutes' walk from here down to that dining room and any amount of stairs and passages in between."

"What's that noise?" said Lucy suddenly. It was a far larger house than she had ever been in before and the thought of all those long passages and rows of doors leading into empty rooms was beginning to make her feel a little creepy.

"It's only a bird, silly," said Edmund.

"It's an owl," said Peter. "This is going to be a wonderful place for birds. I shall go to bed now. I say, let's go and explore to-morrow. You might find anything in a place like this. Did you see those mountains as we came along? And the woods? There might be eagles. There might be stags. There'll be hawks."

"Badgers!" said Lucy.

"Snakes!" said Edmund.

"Foxes!" said Susan.

But when next morning came, there was a steady rain falling, so thick that when you looked out of the window you could see neither the mountains nor the woods nor even the stream in the garden.

"Of course it *would* be raining!" said Edmund. They had just finished breakfast with the Professor and were upstairs in the room he had set apart for them—a long, low room with two windows looking out in one direction and two in another.

"Do stop grumbling, Ed," said Susan. "Ten to one it'll clear up in an hour or so. And in the meantime we're pretty well off. There's a wireless and lots of books."

"Not for me," said Peter, "I'm going to explore in the house."

Everyone agreed to this and that was how the adventures began. It was the sort of house that you never seem to come to the end of, and it was full of unexpected places. The first few doors they tried led only into spare bedrooms, as everyone had expected that they would; but soon they came to a very long room full of pictures and there they found a suit of armour; and after that was a room all hung with green, with a harp in one corner; and then came three steps down and five steps up, and then a kind of little upstairs hall and a door that led out onto a balcony, and then a whole series of rooms that led into each other and were lined with books—most of them very old books and some bigger than a Bible in a church. And shortly after that they looked into a room that was quite empty except for one big wardrobe; the sort that has a looking-glass in the door. There was nothing else in the room at all except a dead blue-bottle on the windowsill.

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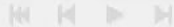


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100 wpm

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[Voice Dream Reader](#) & [Read ME](#)- App that is compatible with bookshare formats and reads aloud.

[Text to Speech](#) Have any online content read aloud for free.

[AT Tool Bar](#)- Another great chrome extension that includes text to speech.

Where to get Digital Text?

Outside Sources

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- [Project Gutenberg](#)
- [NEWSLA](#) (Change Lexile Level)
- [Tween Tribune](#) (Change Lexile Level)
- EPIC

Curriculum (Files already digital)

- ELA Guidebooks
- Learnzillion
- Eureka Math

Amazon Echo

- Read Audio Books
- Spell Words
- Define Words
- Find Synonyms
- Timers/Alerts/Lists/Calendar
- (MATH) Calculations
- Translate



OpenDyslexic is a free **typeface/font** designed to mitigate some of the common reading errors caused by dyslexia. The typeface was created by Abelardo Gonzalez, who released it through an open-source license.^[1] Like many **dyslexia-intervention** typefaces, most notably **Dyslexie**, OpenDyslexic adds to dyslexia research and is a reading aid, but it is not a cure for dyslexia.^[2] The typeface includes regular, bold, italic, bold-italic, and **monospaced font** styles. In 2012, Gonzalez



Dyslexic Font & Color Overlays

[Opendyslexicfont.org](https://opendyslexicfont.org)- Free font for all programs

Beeline Reader- Extension for chrome that converts all pages into dyslexic font and blends all words with color patterns for tracking (FREE).

Seeitright.com- Guides and kit to determine which if any color overlay works for student

ios 10 color tint- Built in color overlay for ipad (FREE)



Text to Speech

ClaroScan Pen App - take a live photo of a page, and have it read aloud

Bookshare- Dyslexic students qualify for FREE. They can have access to thousands of textbooks in digital format read to be read aloud. Check our list for your districts contact at laticenters.org

Voice Dream Reader- App that is compatible with bookshare formats and reads aloud.

Read and Write for Google- Have any online content read aloud for free.

AT Tool Bar- Another great chrome extension that includes text to speech.

Louisiana Digital Literacy Guidelines

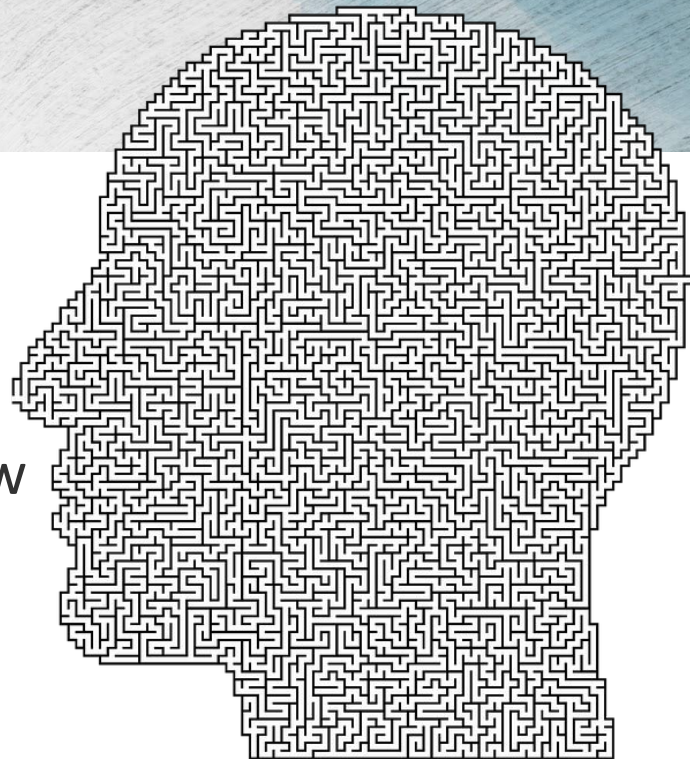
<https://goo.gl/KgzQiZ>



Presented by Justin Sims

justin@ssdla-aem.org

Full presentation at: <http://bit.ly/2uflwKw>



Dysgraphia Definition

There is currently no special education category for Dysgraphia. This category only exist in the fields of neurology and psychology.

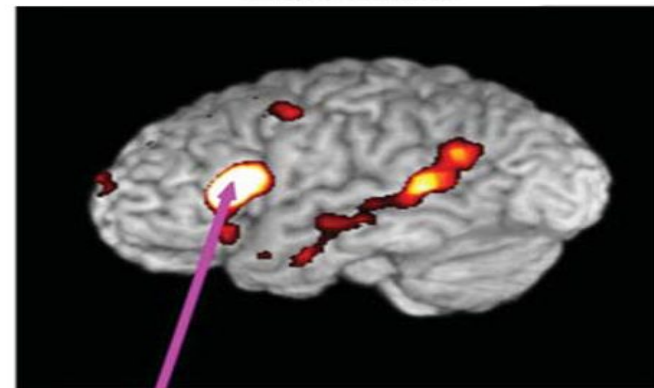
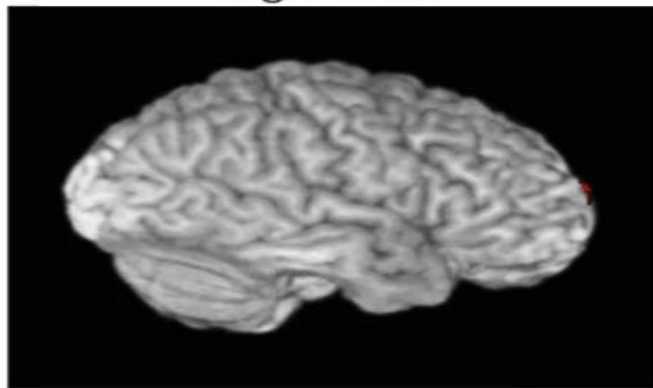
Dysgraphia is a "neurological disorder characterized by writing disabilities" including poor handwriting, word choice, and spelling. This disability breaks down into two categories:

1. Motor Dysgraphia- Common characteristics include poor dexterity, fine motor skills, muscle tone, and is associated with clumsiness. legibly clear writing is still possible, but it requires extreme effort from the student. Finger tapping speeds and keyboarding skills are often below average. Oral spelling is normal.
2. Spatial Dysgraphia- Both copied work and written expression is often spontaneous in syntax and structure often reading as gibberish. Finger tapping speeds and keyboarding skills are within the average range suggesting motor skills are not directly impacted.

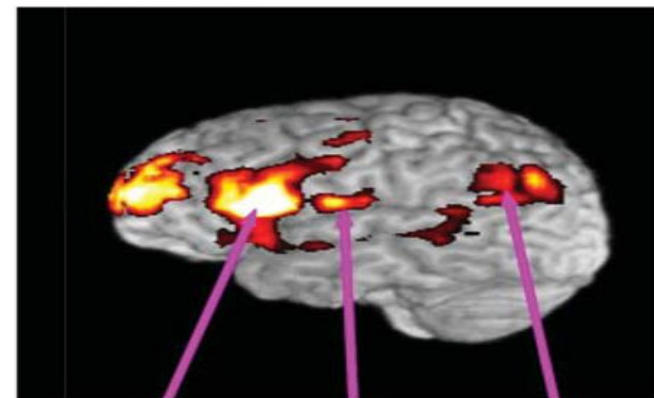
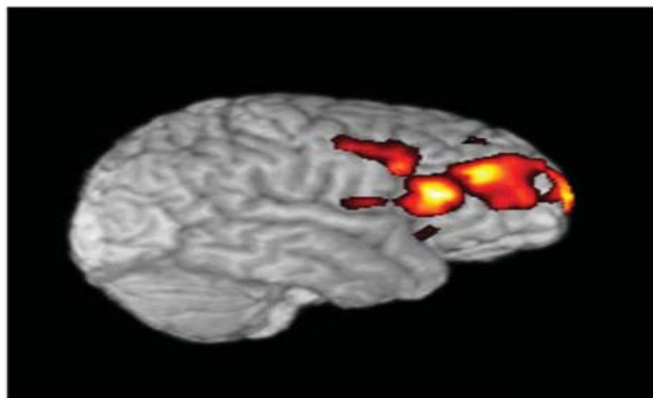
VS

Dysl

dysgraphic subject



dyslexic subject



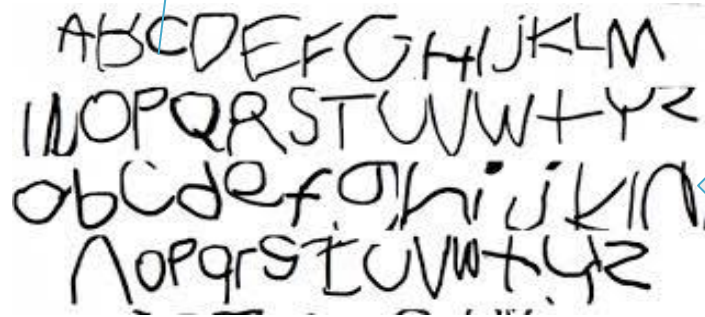
Broca's Area

Broca's Area

Motor area

Angular G.

Misconceptions: TOO MUCH practice doesn't make perfect...makes it worse



1. All research emphasises the incredible frustration of dysgraphia.
2. Fine motor- You overcompensate with muscles in hand or arm and quickly become tired
3. Spatial- Use the force like a jedi to make your hand move as you envision. Also may overcompensate with muscles in hand/arm.
4. So much focus on how to get it down that you forget what you are writing about!!

MULTISENSORY TEACHING

VISUAL

AUDITORY

TACTILE

KINESTHETIC

SEQUENTIAL

SIMULTANEOUS

**REFLECTIVE
LOGICAL**

VERBAL

INTERACTIVE

**INDIRECT
EXPERIENCE**

**DIRECT
EXPERIENCE**

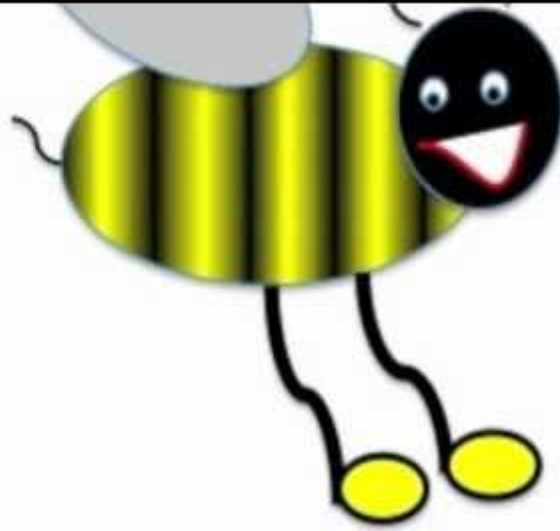
**RHYTHMIC
MELODIC**

b

Letter flipping

Vs p

Drawing and \



d

q

Shaving Cream

&

Cookie Sheet

1. Not a daunting w
2. An activity and no
3. A tactile experien
4. Smell is the stron
5. Less muscle strain
6. Good for Spatial &
7. Only socially acce

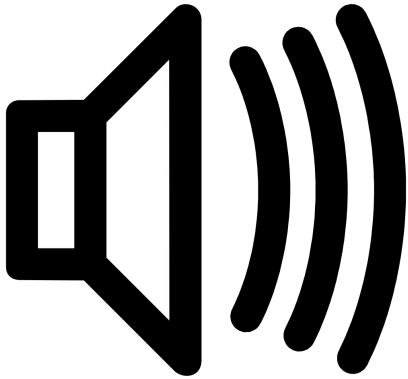


Full Body Mov
Warning it's ch



)

!Mnemonic Devices!



<https://goo.gl/jc9FQI>



ening for Older Students





Hand Strengthening



1. Not daunting blank paper
2. Less strength to make markings
3. Engaging
4. Tracks & records all tracing history including formation errors
5. Can add custom words
6. You can use finger, stylist, or a stylist with a grip.



- iPad Dictation- Write with your voice
- Goworksheet- Complete assignment modification!!
- Word Prediction- Digital Keyboards that make typing easy. (Cowriter, Keedogo, Keeble)
- Built in IOS Features!!

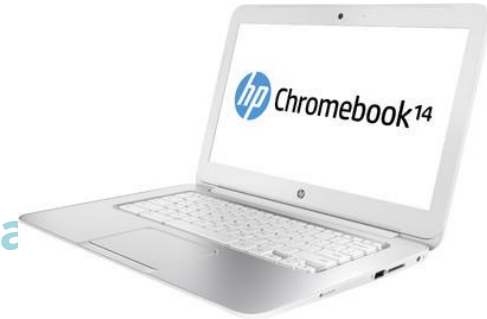


iPad Apps for Success

1. Saves teacher time
2. Saves student time
3. Increase Independence
4. Just another student with an ipad (anonymity)

1. Google Documents Voice Dictation (Also not taking)
2. Cowriter/Read & Write for Google (extensions)
3. Google Forms

If it's digital...there's a way



- Expanding Expression Tool
- Graphic Organizers
- Letter Tiles
- Stamps

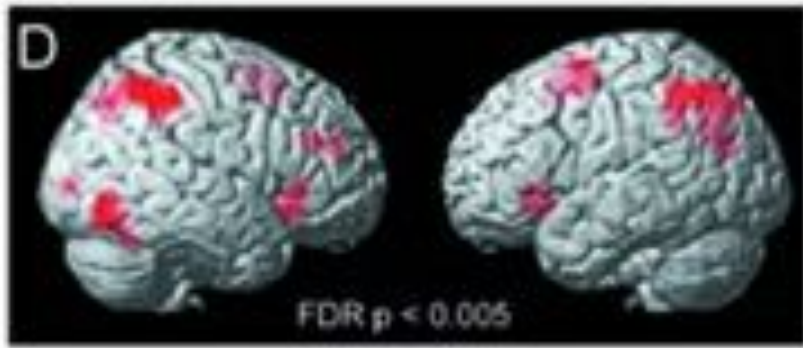
NO Tech Solutions!

Name: _____ Date: _____

Graphic Organizer: Storyboard

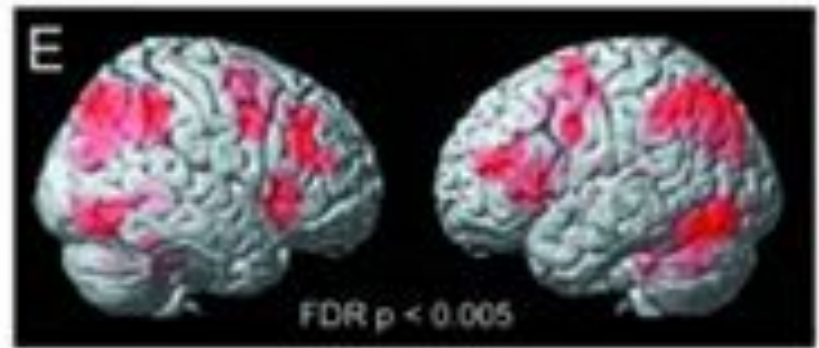
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Dyscalculia

VS



Control

- 
1. Decrease activity in the Angular Gyrus where the brain stores fact retrieval strategies, and assists in the writing process. Therefore it can be associated with both math and writing disabilities. Sometimes it is also associated with reading disabilities since fact retrieval involves recalling phonological patterns and rules.
 2. Decrease activity in the Intraparietal Sulcus involving both visual and spatial tasks.
 3. Dyscalculia consists of several more areas of decreased activity (including in the right hemisphere) when compared to dyslexia and dysgraphia and, therefore, can be linked to several learning disabilities including those that extend beyond mathematics. Since the impact of dyscalculia is so widespread within the neurological system, several experts contest its merit for being a category at all.

Butterworth, B (2010). "Foundational numerical capacities and the origins of dyscalculia". *Trends in Cognitive Sciences*. **14** (12): 534–541

calculations. It is currently broken down into three sub-types by experts.


1. Semantic Memory- Difficulty when retrieving long term facts such as mathematical symbols.

2. Procedural Concepts- Consists of poor numeracy and counting skills to solve mathematics problems.

3. Working Memory- Poor ability to maintain thought processes long enough to find an answer. This is often associated with several learning disabilities.

Dyscalculia Definition

Dyscalculia is so diverse it's hard to see
where to start!



Expression occurs in all subjects including MATH!

- Calculation
- Visual-Spatial Skills
- Organization
- Problem Solving

$$1. \quad 2 + 7 = 10$$

$$2. \quad 2 + 8 = 10$$

$$3. \quad 3 + 1 = 4$$

$$9. \quad 3 + 7 = 10$$

$$10. \quad 4 + 1 = 5$$

$$11. \quad 4 + 2 = 6$$

$$1. \quad 3x + 7 > 19$$

$$-7 \quad -7$$

$$3x > 12$$

$$2. \quad \left(\frac{-2}{3}x + \frac{5}{6} \right) \leq \frac{1}{3} \cdot 6$$

$$- \frac{5}{6} \quad - \frac{5}{6}$$

$$- \frac{2}{3}x \leq 2.1$$

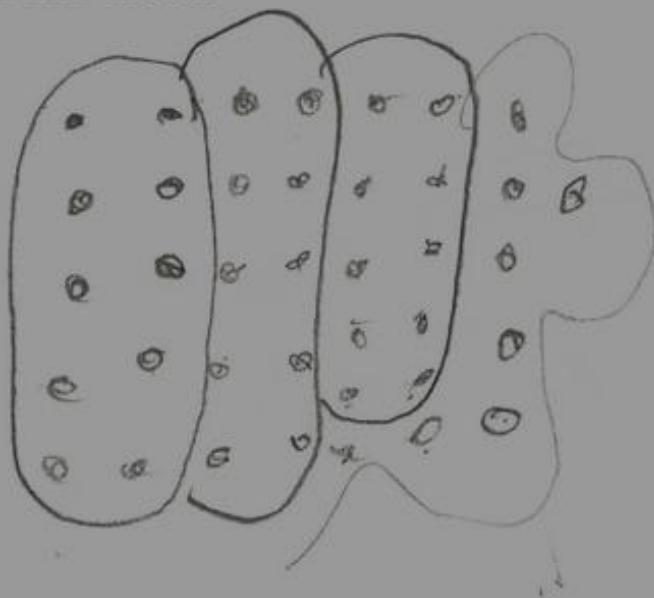
$$x \leq -3.15$$

Julie has 38 boxes of oranges in her delivery truck. Each box holds 12 oranges. How many oranges does Julie have in her truck?



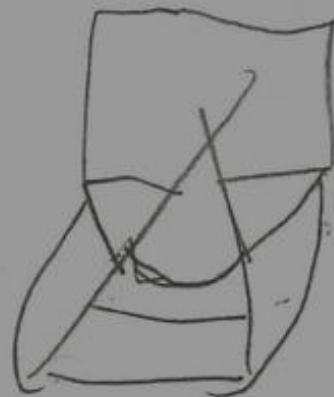
$$\begin{array}{r} 120 \leftarrow \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 240 \\ + 96? \\ \hline 336 \end{array}$$



~~$$96$$~~

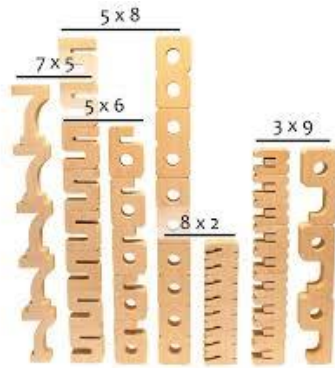
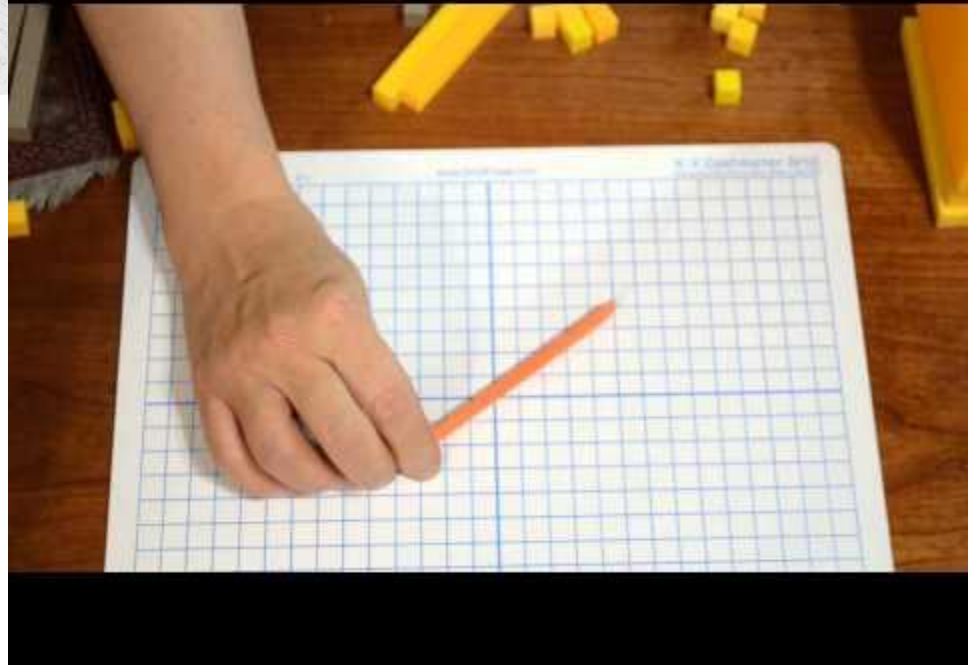
$$336$$





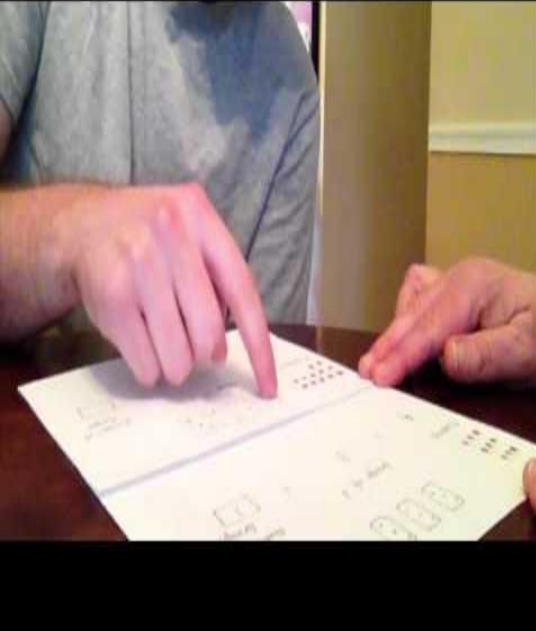
Calculator would have
made no difference!



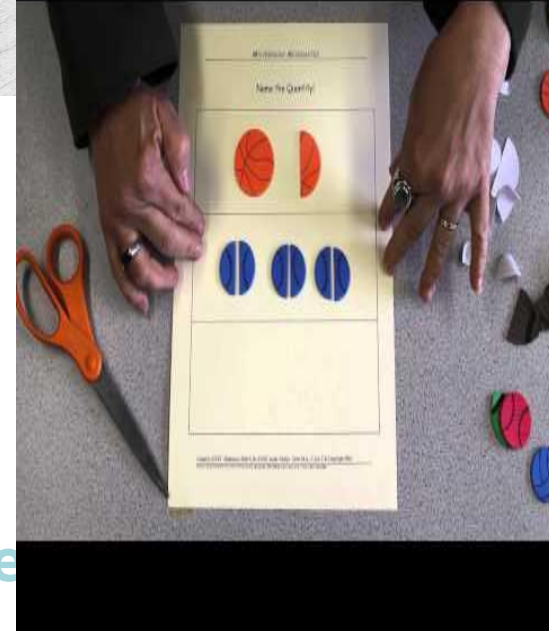


Sumblox →
concrete, and

Fractions



Multiplication



 MATH&MOVEMENT™



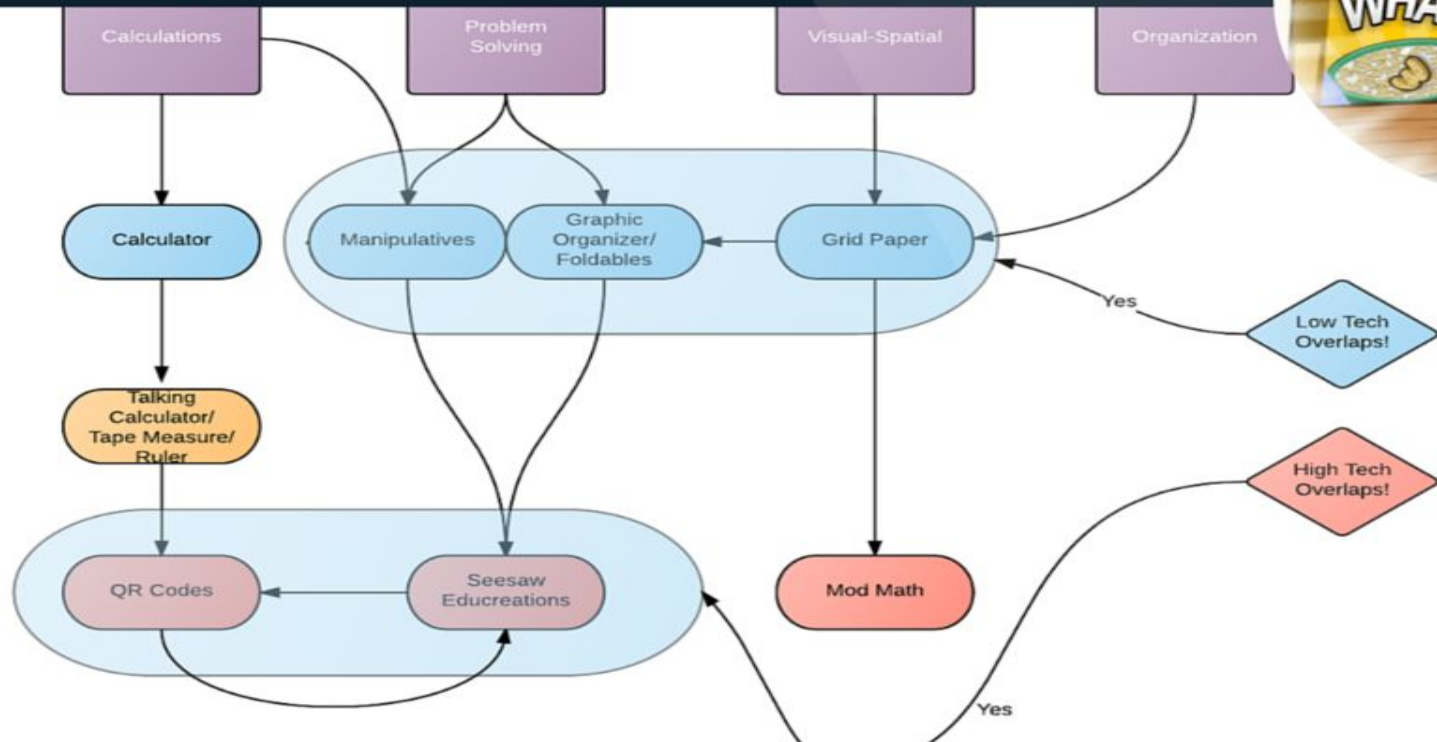
Purchase at

Unlike Dyslexia programs... it is easy to make your own materials and strategies!!!

<http://www.mathandmovement.com/>

- Mod Math App.
 - Seesaw APP.
 - Educreations/QR Codes
 - Highlighting/Color Coding
- WARNING- Careful with Calculators!!**

Tools



Flow Chart Confusion

Presented by Justin Sims

justin@ssdla-aem.org

Full presentation at: <http://bit.ly/2uflwKw>

