

What SLPs Need to Know about Dyslexia

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About Me

Was an elementary teacher
for 12 years

Have been an SLP for 12
years

Mom of a child with a
speech and reading
disorder

Board Certified Specialist
in Child Language



About Our Students

- **64%** of 4th graders are not reading at grade level (NAEP, 2019)
- **66%** of 8th graders are not reading at grade level (NAEP, 2019)
- **63%** of 12th graders are not reading at grade level (NAEP, 2015)
- **33%** of students with a learning disability have repeated a grade (NCLD, 2017)
- **80%** of students with a learning disability have **DYSLEXIA** (although it's usually not identified as such) (Yale Center for Dyslexia and Creativity, 2017)
- **50%** of students with dyslexia perform 3 grade levels below their peers on key skills (Learning Ally, no date)



What we are covering today...

Defining literacy – specifically reading

Discovering how reading and language relate

Discussing the SLP's role in literacy

Investigating the types of literacy disorders

Dyslexia 101

Assessing Dyslexia

Intervention strategies for literacy

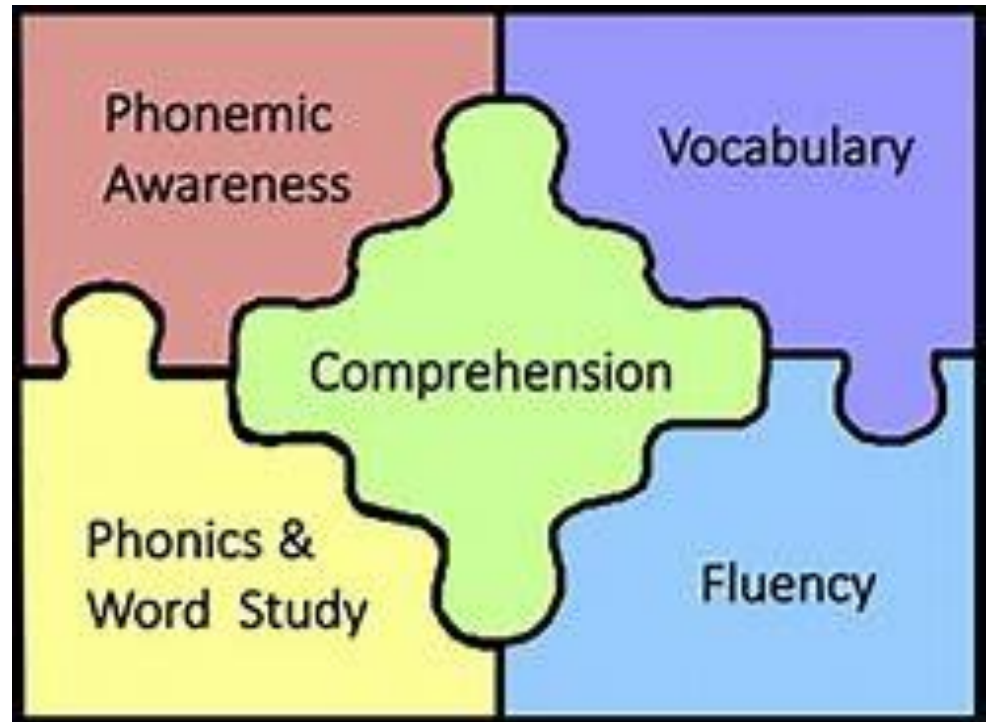
Accommodations

Collaborating

What is Literacy?

Broadly defined: Ability to read and write

National Reading Panel:
Phonemic Awareness
Phonics
Fluency
Vocabulary
Comprehension



Simple View of Reading

Sound/
Word Level

Sentence/
Discourse
Level

Decoding/Word
recognition



Listening
Comprehension



Reading
Comprehension

Gough & Tunmer, 1986; Tunmer & Chapman, 2012

How does literacy relate to language?



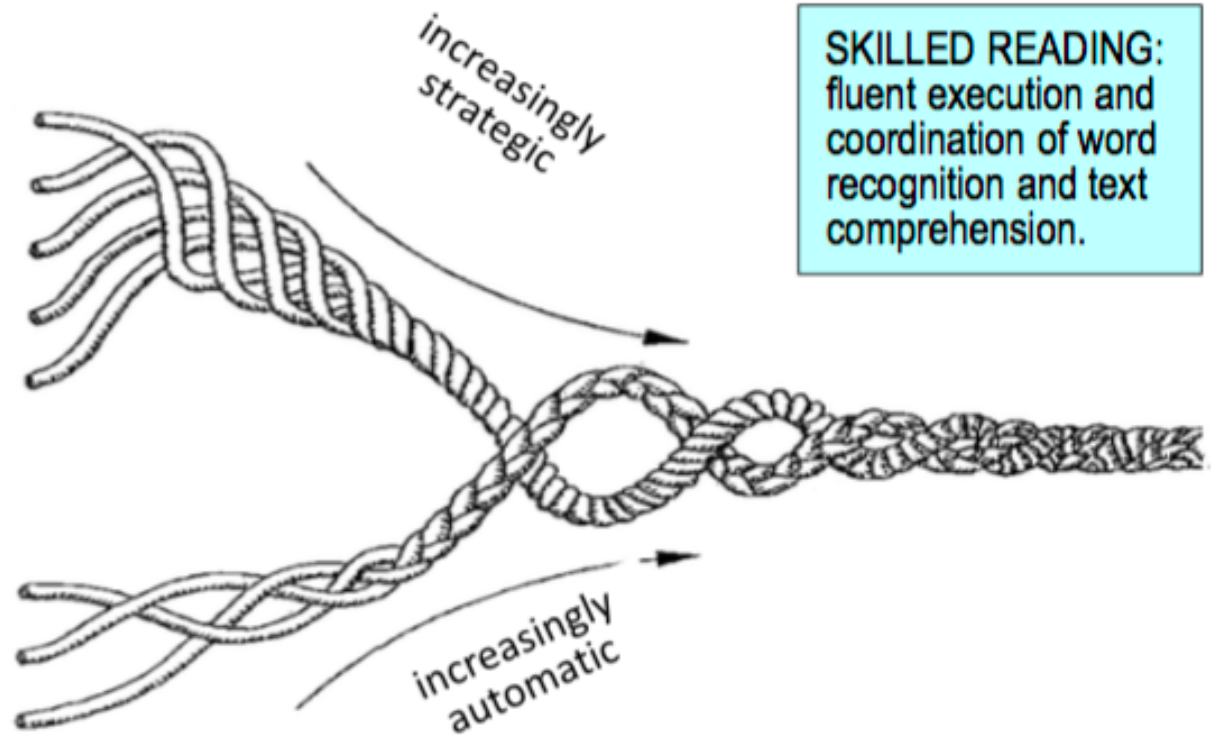
Scarborough's Reading Rope (2001)

LANGUAGE COMPREHENSION

- Background Knowledge
- Vocabulary Knowledge
- Language Structures
- Verbal Reasoning
- Literacy Knowledge

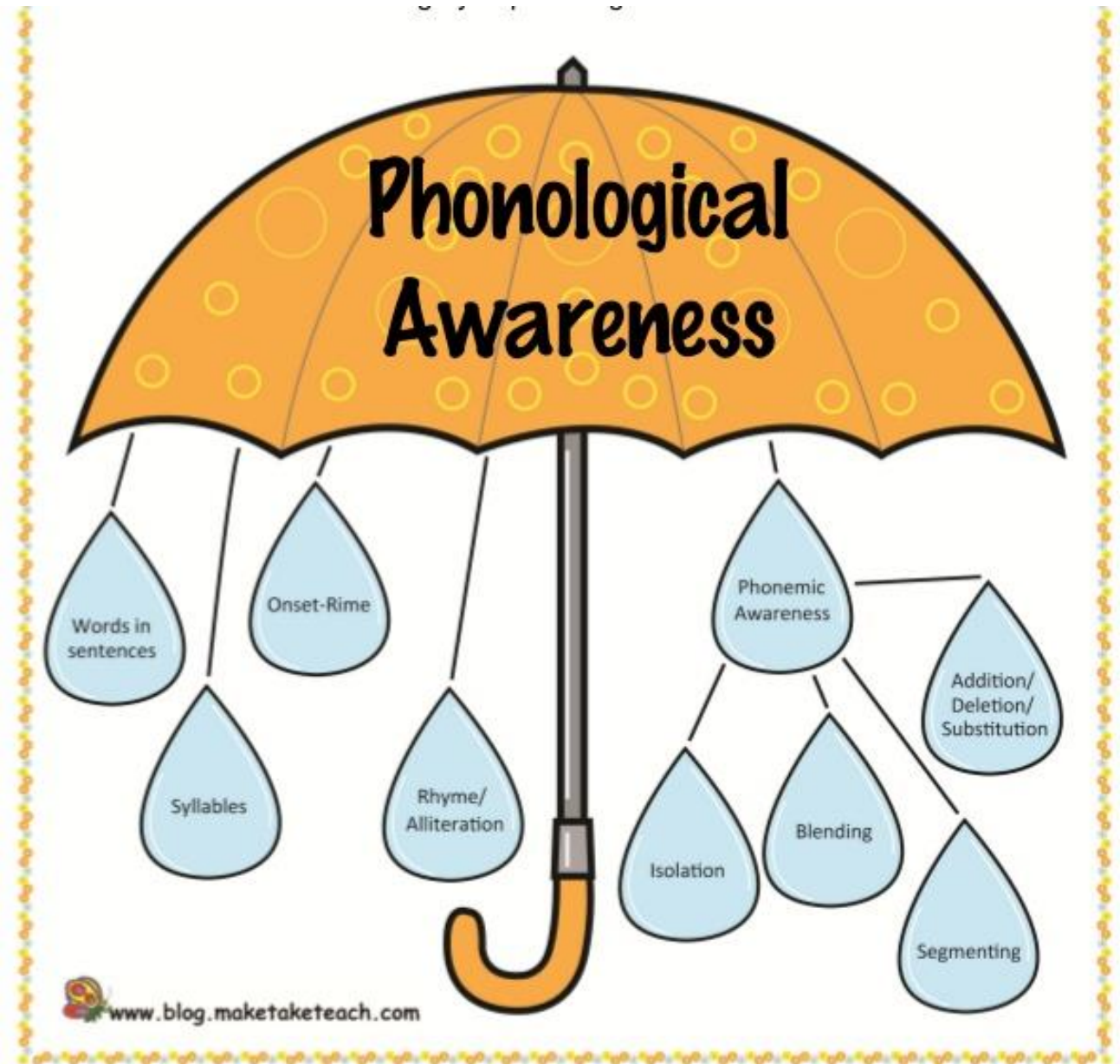
WORD RECOGNITION

- Phonological Awareness
- Decoding (and Spelling)
- Sight Recognition



Reading is a multifaceted skill, gradually acquired over years of instruction and practice.

Relationship between PA and reading



In reading, the “sounds of spoken language [are] mapped onto letters or syllables (graphemes).”

“Beginning readers must decode print to access the [sound] and meaning of words. They already know the meanings of words in spoken language, but they have to learn to relate [the sounds of spoken] language to print through explicit phonological awareness.”

(Gabielli, 2009)

24 Consonant Phonemes / Graphemes

Phoneme (sound)	Examples	Graphemes (written patterns)		Phoneme (sound)	Examples	Graphemes (written patterns)	
/b/	ban <u>a</u> na, bub <u>b</u> les	b	bb	/s/	sun, mou <u>s</u> e	s	ss, ce, se, c, sc
/c/	ca <u>r</u> , du <u>ck</u>	c	k, ck, q, ch	/t/	t <u>u</u> rtle, l <u>itt</u> le	t	tt
/d/	di <u>n</u> osaur, pu <u>dd</u> le	d	dd,	/v/	volc <u>an</u> o, hal <u>v</u> e	v	ve
/f/	fi <u>sh</u> , gi <u>ra</u> ffe	f	ff, ph, gh	/w/	wa <u>ch</u> , que <u>en</u>	w	wh, u
/g/	gi <u>ta</u> r, go <u>gg</u> les	g	gg,	/x/	fo <u>x</u>	x	
/h/	he <u>l</u> icopter	h		/y/	yo-yo	y	
/j/	je <u>ll</u> yfish, fri <u>dg</u> e	j	g, dge, ge	/z/	zi <u>p</u> , plea <u>s</u> e	z	zz, ze, s, se
/l/	lea <u>f</u> , be <u>ll</u>	l	ll, le	/sh/	sh <u>o</u> es, te <u>l</u> evision	sh, ch, si, ti	
/m/	mo <u>n</u> key, ha <u>mm</u> er	m	mm, mb	/ch/	ch <u>il</u> dren, st <u>it</u> ch	ch, tch	
/n/	na <u>il</u> , kn <u>o</u> t	n	nn, kn	/th/	mo <u>th</u> er	th	
/p/	pu <u>mp</u> kin, pu <u>pp</u> ets	p	pp	/th/	th <u>o</u> ng	th	
/r/	ra <u>in</u> , w <u>ri</u> te	r	rr, wr	/ng/	si <u>ng</u> , a <u>nk</u> le	ng, n	

 Regular Alphabet Letters and Sounds

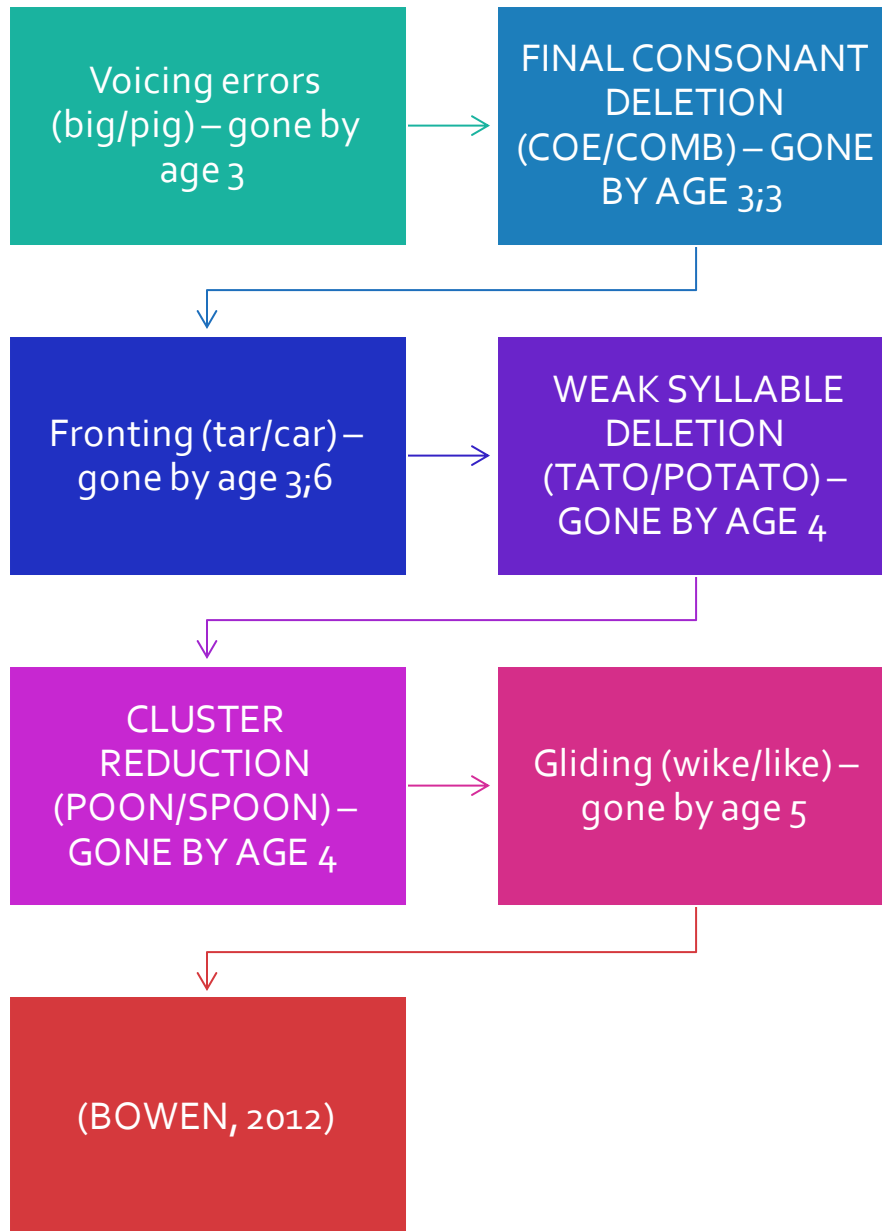
 Advanced Letter Patterns and Sounds

[@K-3TeacherResources.com](http://www.K-3TeacherResources.com)

Speech problems that may signal poor phonological awareness

Presence of unusual speech errors (not seen in typical speech development):

- Initial consonant deletion (og for dog)
- Backing (moving front sounds like /t/ and /d/ to the back of the mouth like /k/ and /g/)
- Glottal replacement (ha er for hammer)
- Fricatives replacing stops (sop for top)
- Stopping of glides (darn for yarn)
- Vowel error patterns



Persistence of normal developmental speech errors beyond the ages at which they would normally disappear.

Additional symptoms of poor phonological awareness

Errors in sequencing sounds in spoken language (aminal / animal)

Trouble remembering sound-symbol relationships (e.g., the sound /bl/ is made with the letters b and l)

Overreliance on whole-word and context cues when reading

Difficulty sounding out unfamiliar words

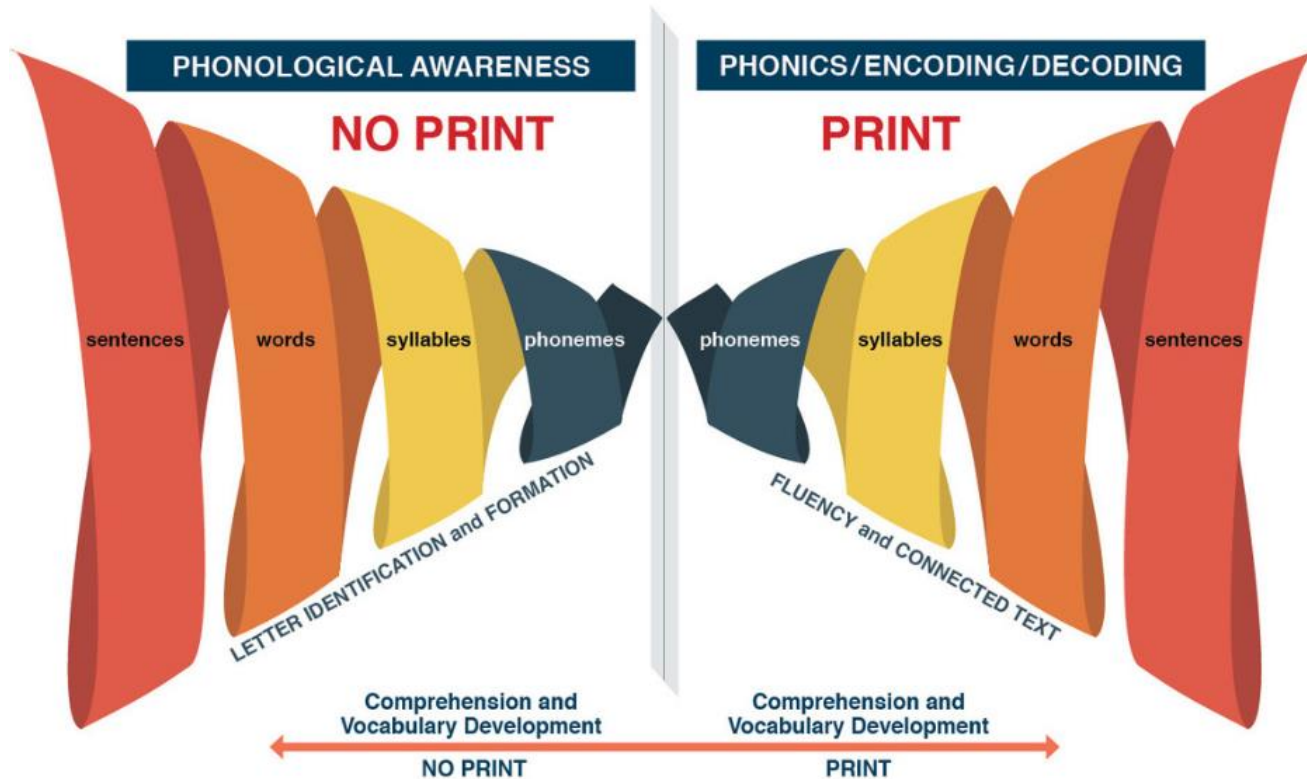
Slow reading rate

Difficulty sequencing sounds in words when spelling

Confusions between similar-sounding sounds (e.g., the short vowel sounds /e/ and /l/)

(Mather & Wendling, 2012)

TYING PHONOLOGICAL AWARENESS to READING and SPELLING



What's the
SLPs role?

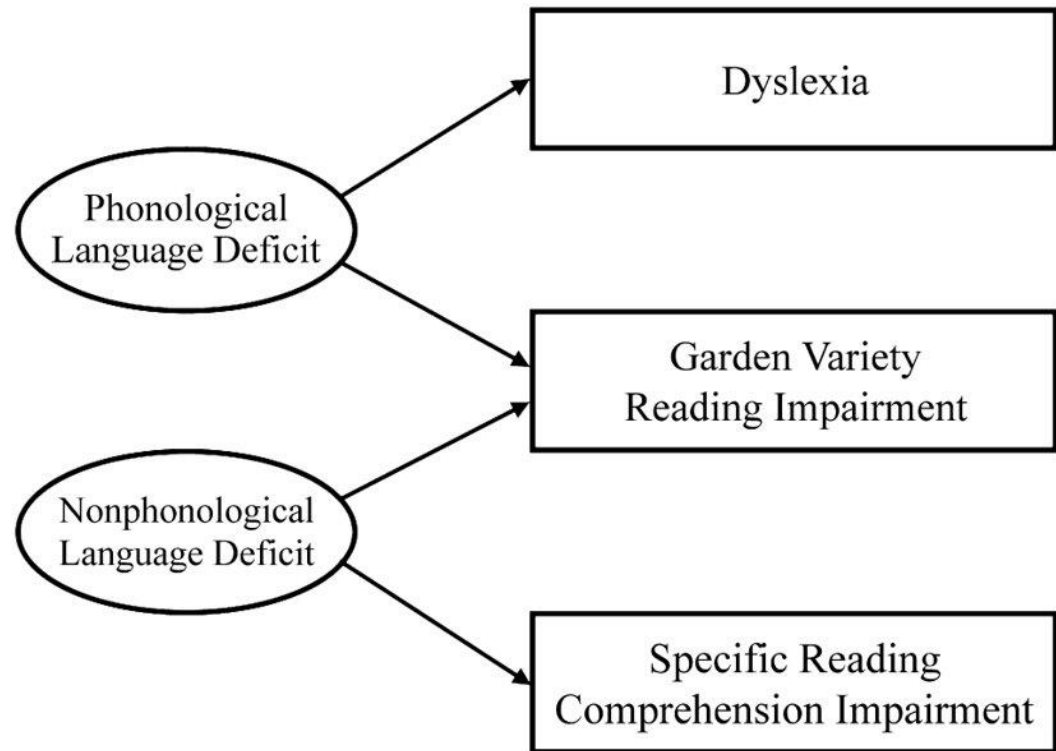


Do SLPs teach
reading?



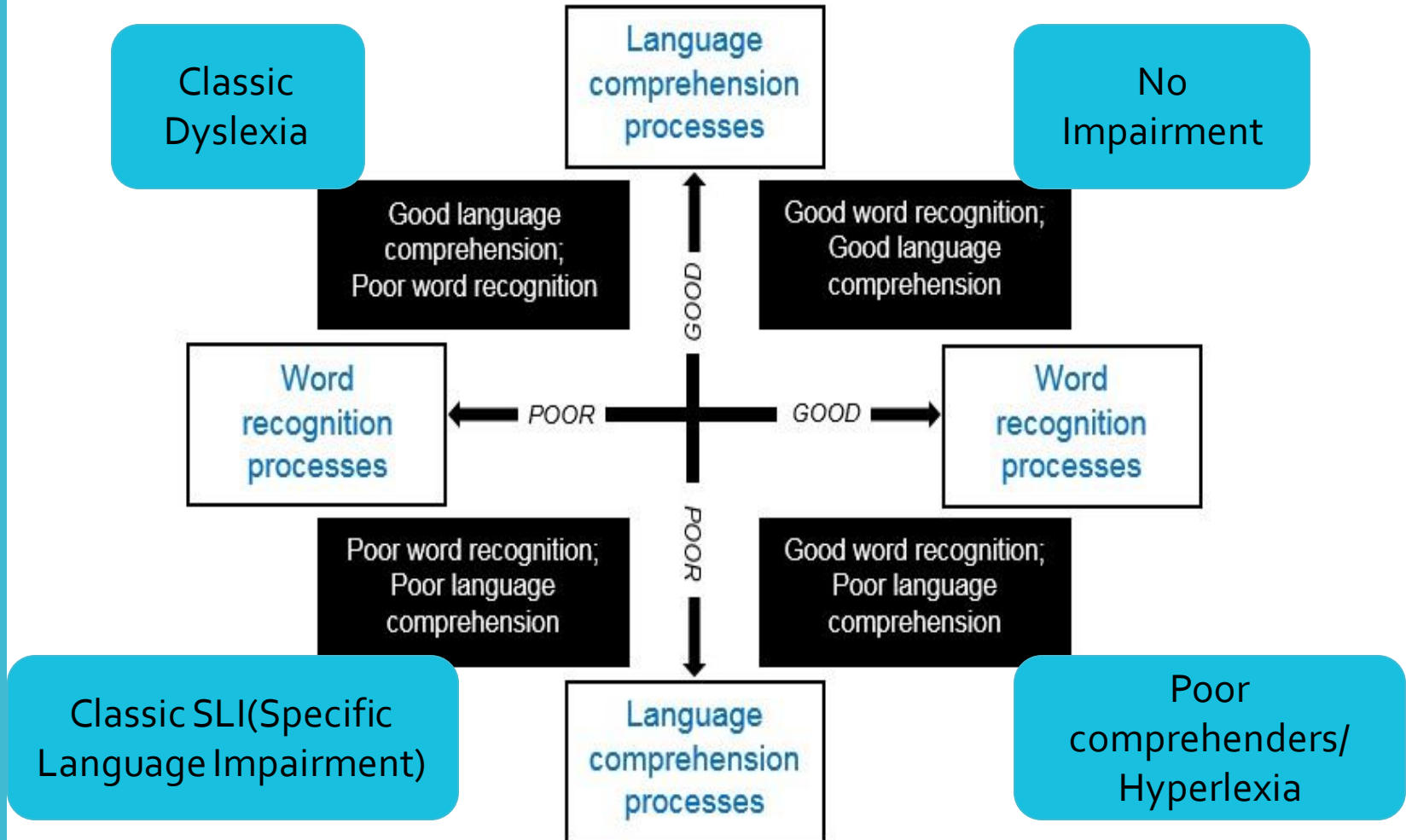
SLPs are **SPECIALISTS**
in Language

Classifying reading disabilities



Werfel & Krimm, 2017

The Simple View of Reading



(Hoover & Gough, 1990)

Third Grade Reading Law



Based on the spring 2020 ELA M-STEP, 3rd grade students flagged for retention, may be retained in the 2020-2021 school year



https://www.michigan.gov/documents/mde/Read_Grade_3_Guide_638247_7.pdf

ESSA

<https://www.asha.org/uploadedFiles/Every-Student-Succeeds-Act-Key-Issues.pdf>

- In a nutshell:
 - SLPs can be used to support literacy instruction
 - Recognize early indicators of students at risk of not attaining full literacy skills due to a disability (including dyslexia) or developmental delay that affects reading, writing, language processing, comprehension or executive functioning.
 - Use evidence-based screening assessments for early identification of students beginning no later than kindergarten.
 - Implement evidence-based instruction designed to meet the specific needs of such students.

What ASHA
says...

- https://www.dropbox.com/sh/h3iodo1f4g42umt/ADmhg33FtUyx_x73lYdokvba?dl=0&preview=ASHA+IPP+Literacy.mp4

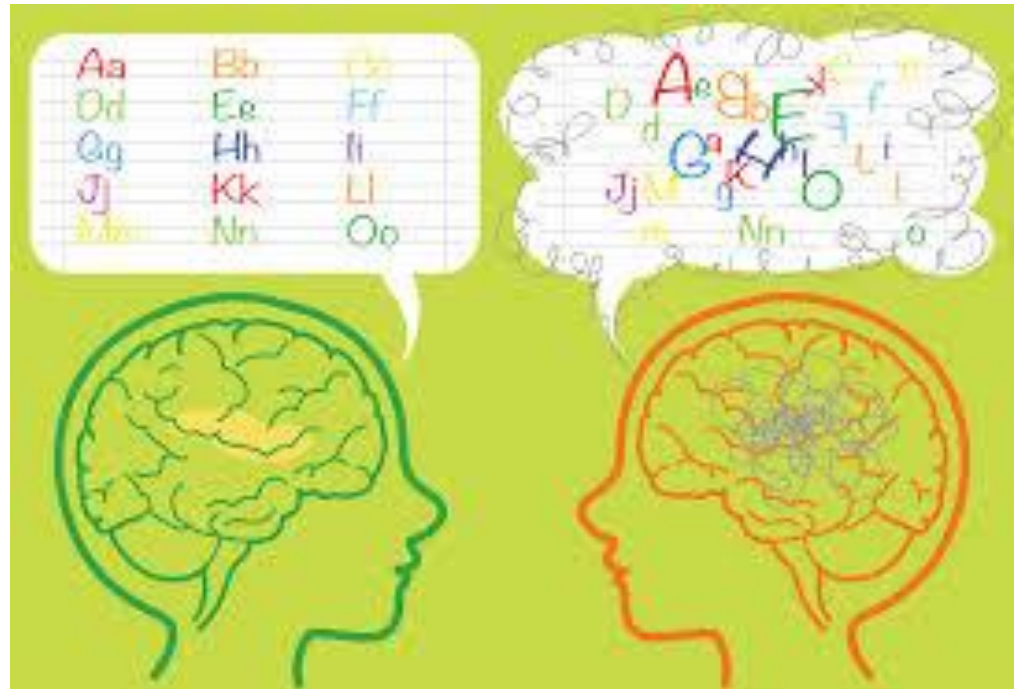
What MSHA says...

"In summary, dyslexia is a language-based learning disorder. SLPs are qualified to evaluate and child's oral and written language. This information, coupled with parental and educational reports, provides the SLP with the information necessary to make an informed diagnostic decision. An SLP's diagnostic report should serve as evidence for a child to receive support services under the Individuals with Disabilities Education Improvement Act" (IDEIA, 2008).

Check-
In!



Dyslexia 101



DSM 5 Classification

Specific Learning Disorder

Includes subtypes in reading (reading rate, reading comprehension) and writing (spelling accuracy, grammar and punctuation)

Previously specified in DSM 4 as

Reading disorder

Mathematics
disorder

Disorders of
written expression

Learning disorder,
NOS

No longer uses a discrepancy formula between IQ
and achievement

Focuses on the specific academic area that is significantly
below age, grade level, and developmental maturation

Dyslexia Defined (National Institute of Child Health and Human Development)

“A specific learning disability that is **neurobiological** in origin. It is characterized by difficulties with **accurate and/or fluent word recognition and by poor spelling and decoding abilities**. These **difficulties typically result from a deficit in the phonological component of language** that is often **unexpected in relation to other cognitive abilities and the provision of effective classroom instruction**. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.”

“Dear
Colleague”
letter on
Dyslexia
(October 25,
2015)

- Office of Special Education and Rehabilitative Services (OSERS) issues Dear Colleague letters on important topics.
 - “...dyslexia, dyscalculia, and dysgraphia, which are conditions that could qualify a child as a child with a specific learning disability under the Individuals with Disabilities Education Act (IDEA).”
 - “nothing in the IDEA that would prohibit the use of the terms dyslexia, dyscalculia, and dysgraphia in IDEA evaluation, eligibility determinations, or IEP documents.”
 - “Stakeholders also requested that SEAs and LEAs have policies in place that allow for the use of the terms dyslexia, dyscalculia, and dysgraphia on a child’s IEP, if a child’s comprehensive evaluation supports use of these terms. There is nothing in the IDEA or our implementing regulations that prohibits the inclusion of the condition that is the basis for the child’s disability determination in the child’s IEP.”
 - http://www.asha.org/News/2015/ED-Issues-Guidance-on-Dyslexia/?_ga=1.178060717.901371265.1453648458

Neuro- biological in Origin

Typical Brain / Dyslexic Brain comparison

Typical



- Broca's area, Inferior frontal gyrus (articulation/word analysis)
- Parieto-temporal (word analysis)
- Occipito-temporal (word form)

Dyslexic



- Broca's area, Inferior frontal gyrus (articulation/word analysis)

Experience Dyslexia



Share Your
Experience



What does dyslexia look like in a classroom?

- Smart kids
- Teachers may say they're lazy, unmotivated
- Spelling is terrible – inconsistent – may do OK on weekly test, but doesn't transfer to written work
- Can't sound out unknown words – takes a long time to add words to sight word vocabulary
- Students may be able to decode certain words, but can't spell the same word (e.g., can decode the vowel team /ai/ as long /a/ for "wait", but will continue to spell it as "wate")



Preschool warning signs



- Delayed speech
- Mixing up the sounds and syllables in long words
- Chronic ear infections
- Stuttering
- Constant confusion of left versus right
- Late establishing a dominant hand
- Difficulty learning to tie shoes
- Trouble memorizing their address, phone, or alphabet
- Can't create words that rhyme
- Trouble recognizing letters of alphabet
- A close relative with dyslexia

Elementary warning signs

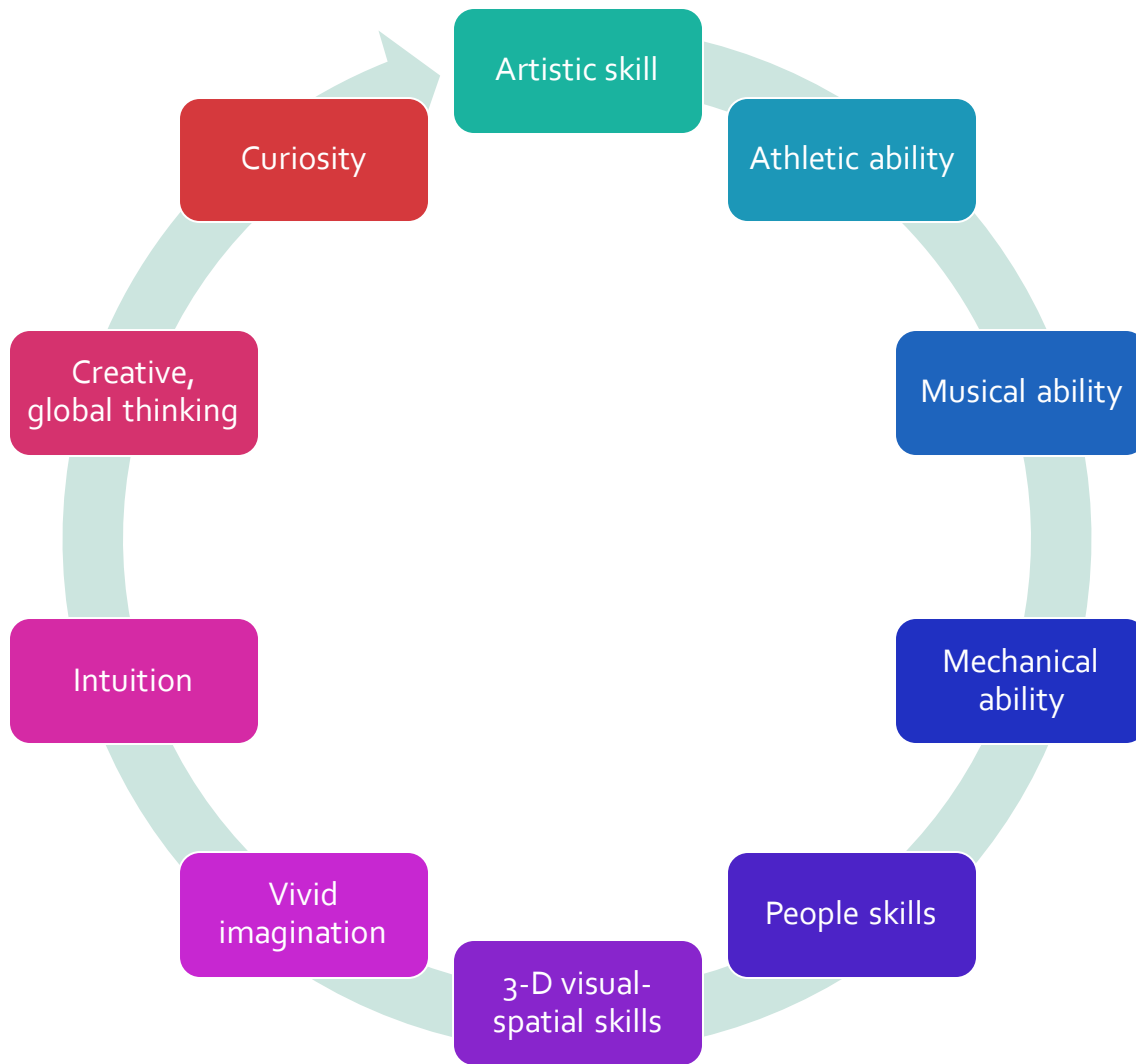


- Dysgraphia
- Letter or number reversals continuing past the end of first grade
- Extreme difficulty learning cursive
- Terrible spelling
- Often can't remember sight words
- Difficulty telling time with a clock with hands
- Trouble memorizing multiplication tables, sequence of steps, directionality
- Difficulty finding the correct word when speaking
- Extremely messy bedroom, backpack, and desk
- Dreads going to school
- Slow, choppy, inaccurate reading:
 - Guesses based on shape or content
 - Skips or misreads prepositions
 - Ignores suffixes
 - Can't sound out unknown words

High school warning signs



- Limited vocabulary
- Extremely poor written expression
- Extreme difficulty in mastering a foreign language
- Difficulty reading printed music
- Difficulty organizing and managing time
- Poor grades
- May drop out of high school



Strengths

Problems surrounding the diagnosis of dyslexia

Lack

- Lack of recognition of “dyslexia” as a specific learning disability
- Overwhelming neurobiological evidence

Use

- Use of a single standard to make the diagnosis
 - Discrepancy requirements
 - Scores must be below a specific metric (e.g., 1 or 1.5 standard deviations below mean)

Use

- Use of a single deficit theory
 - Requiring that a specific skill be deficient such as phonological decoding, reading fluency etc.

Making an accurate diagnosis

Avoid

- Avoid adherence to one formula or pattern

Interpret

- Interpret data using a convergence of information

Think

- Think outside the box if testing doesn't support history

Diagnosis by convergence of evidence



Qualitative observations of performance on a range of academic tasks



Severe deficits in reading rate/accuracy, spelling and writing conventions



Test scores and discrepancies across skills



Rate of learning on tasks of reading and writing; nature of errors



Family and developmental history

Expected discrepancies



Spoken lang > written lang



Listening comp > word level
decoding

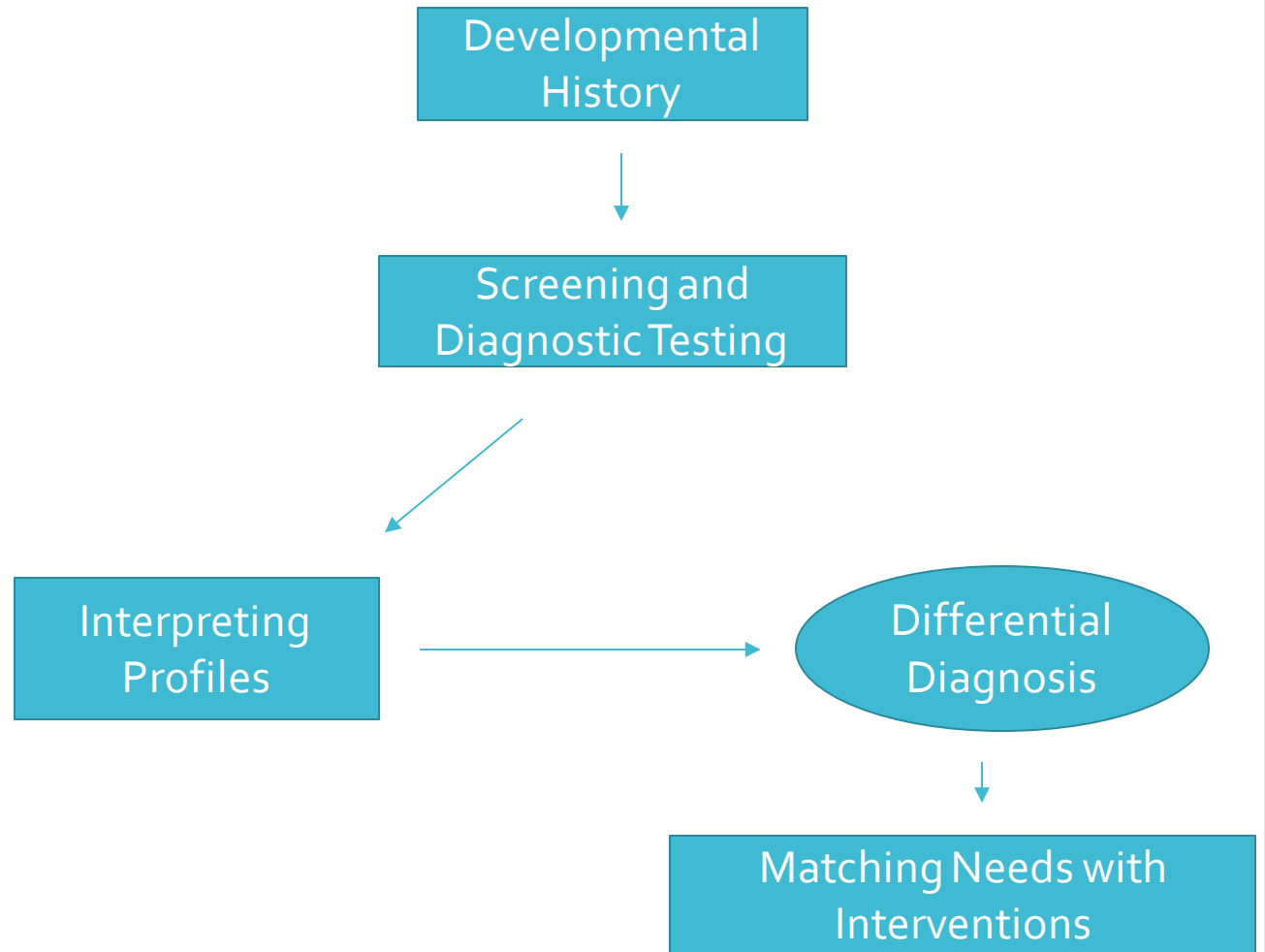


Content of written lang >
spelling and punctuation



Fluid reasoning > processing
speed

Approach to Reading Assessment



Lombardino & Lieberman (2006)

Developmental History

When did you first become aware of your child's academic struggles?

What did the school do when you expressed your concerns?

Has your child had any outside tutoring or therapy?

Has anyone ever suggested your child might have ADD or ADHD?

If yes, did you pursue professional testing for it?

Did your child have:
(Mark all that apply)

Delayed speech?
(not speaking at 12 months)

Mixing up the sound or syllables when saying long words
(aminal for animal)

Articulation problems – specifically r/l, m/n, s/sh/ch

Chronic ear infections

Word retrieval difficulty

Early Stuttering

Constant confusion of left versus right

Late establishing a dominant hand

Difficulty learning to tie shoes

Did your child have:
(Mark all that apply)

Trouble memorizing the names of the letters and the sounds they make

Trouble memorizing his address, phone number, or the alphabet

Can't create words that rhyme (or could not in kindergarten)

Dysgraphia

Letter or number reversals continuing past the end of first grade

Extreme difficulty learning cursive

Slow, choppy,
inaccurate reading

Guesses based on shape
or context

When young, could read
a word on one page
but not know it on
the next page

Extreme difficulty
learning high frequency
words

Still skips or misreads
prepositions (at, to, of)

May read very slowly –
school is working –
on fluency

Can't easily sound out
an unknown word –
despite being taught
phonicsTerrible spelling

When writing sentences
and stories;
even misspells high
frequency words

Cannot retain spelling
words from one week to
the next

Often writes the
wrong homonym

Did your child
have: (Mark all
that apply)

Difficulty telling
time on a clock with
hands

Trouble with math

Memorizing math
facts or
multiplication tables

Memorizing a
sequence of steps

Directionality
(greater than/less
than, before/after,
start on wrong side)

Can't read the word
problems

Did your child have: (Mark all that apply)

Difficulty with
near-point
copying

Can only copy one
or two letters at a
time

Often loses his
place when
copying

Extreme difficulty
taking notes
during lectures

Unable to master
a foreign
language

Difficulty reading
printed music

Did your child have: (Mark all that apply)

Did your
child have:
(Mark all that
apply)

Homework takes forever

Child is unable to do homework without assistance

Nightly homework wars

Self-esteem issues

Child starts talking about being stupid

Other kids tease him about being stupid

Can you think of any close relatives who have
the classic warning signs of dyslexia?

Screeners

PEARL

DIBELS

Questionnaires

Language Samples

Listening Comprehension

A Typical Assessment for Dyslexia

Nonverbal Intelligence

WHY: Rule out a cognitive impairment

EXPECT: Average to above average performance

Listening Comprehension

WHY: Rule out a receptive language disorder

EXPECT: Average to above average performance

Narrative Language

- WHY: Asking a child to tell a story will help distinguish if there are other language issues present
- EXPECT: Average to above average performance

Phonological Awareness/Memory/RAN

- WHY: Deficits in PA are a hallmark of dyslexia
- EXPECT: Deficits

A Typical Assessment for Dyslexia

1

Reading nonsense words (rate, accuracy, and fluency)

- WHY: Depressed fluency is a hallmark of dyslexia
- EXPECT: Deficits

2

Reading real words (rate, accuracy, and fluency)

- WHY: You may see this as a strength compared to nonsense words, but overall depressed fluency
- EXPECT: Deficits

Spelling

- WHY: Depressed spelling is a hallmark of dyslexia
- EXPECT: Deficits

Writing

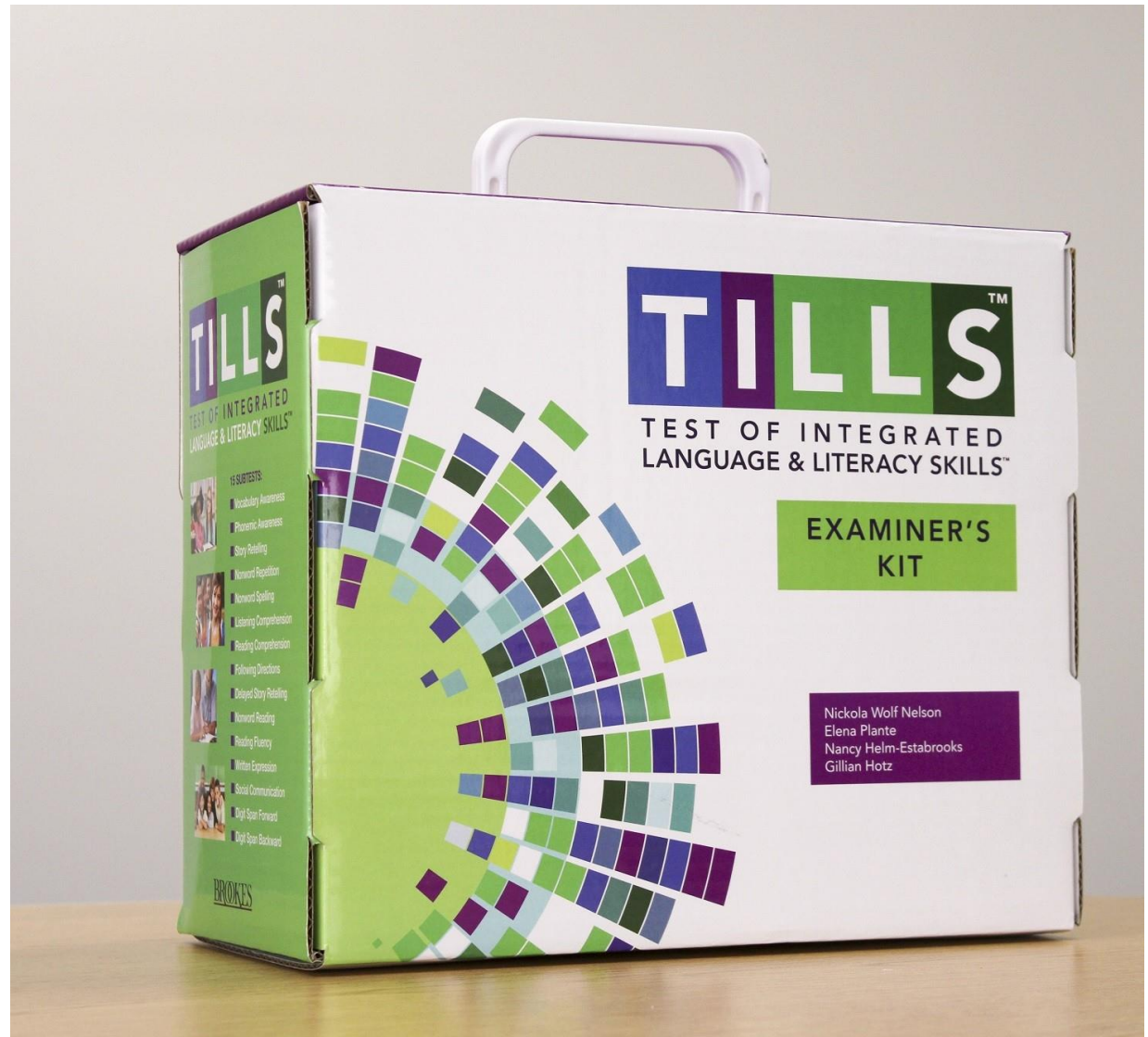
- WHY: There is often a disconnect between oral and written language.
- EXPECT: Spelling will be impacted. Dysgraphia might be apparent. Word choice might reflect less mature vocabulary

A Typical Assessment for Dyslexia

Global Language

- WHY: There is a discrepancy between oral and written language
- EXPECT: Oral language to be more proficient than written language

Starting point for
assessment



Extended time

No copying
from board

Don't take off
for spelling
errors

Reduce length
of assignment

Extended time
or shorter tests

Allow oral
testing instead
of written

Allow typed
assignments

Reduced
spelling list

Dictation to a
scribe

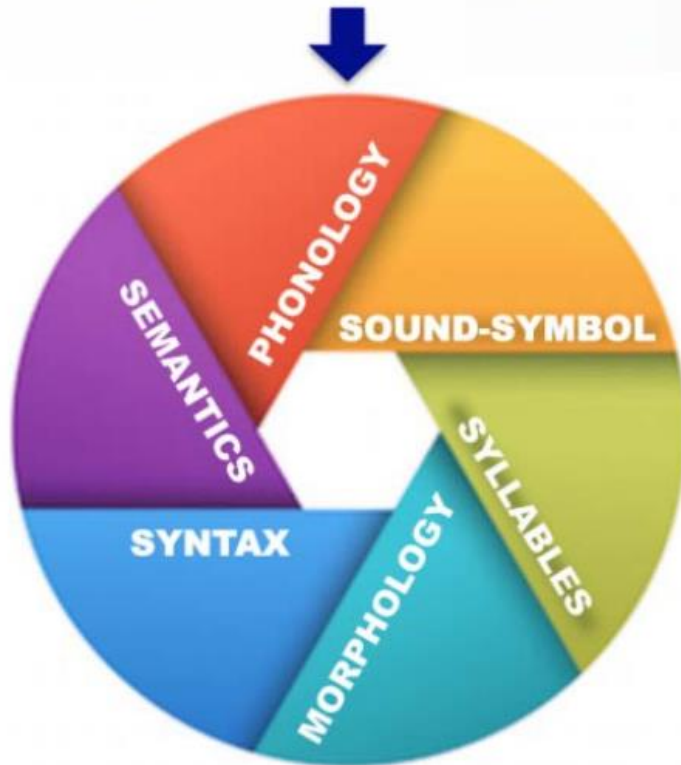
Use of devices
that read text

Foreign
language
waiver

General Accommodations

STRUCTURED LITERACY PRIMER

Structured Literacy's ELEMENTS work together.



Structured Literacy's
Evidence-Based Elements

Phonology (study of sound structure of spoken words) is a key element of Structured Literacy Instruction. **Phonemic awareness** (ability to distinguish / segment / blend / manipulate sounds relevant to reading/spelling) is central to phonology.

Sound-Symbol Association Once students develop phoneme awareness, they must learn the **alphabetic principle**—how to map phonemes to letters (**graphemes**) and vice versa.

Syllables Knowing the six syllable / vowel grapheme types helps readers associate vowel spellings with vowel sounds. Syllable division rules help readers divide / decode unfamiliar words.

Morphology A **morpheme** is the smallest unit of meaning in language. Studying base elements and affixes helps readers decode and unlock the meanings of complex words.

Syntax—the set of principles that dictate the sequence and function of words in a sentence—includes grammar, sentence structure, and the mechanics of language.

Semantics Semantics is concerned with meaning. The Structured Literacy curriculum (from the start) includes instruction in the comprehension and appreciation of written language.

Principles of Interventions for Decoding



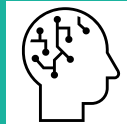
Instruction needs to be diagnostic and responsive – every child is different



Errorless learning – instruction that is carefully scaffolded



Direct Instruction: teachers should be showing students not just the what, but the why and the how and students should not have to figure it out on their own



Ample opportunities to apply learning to read connected text with expression to acquire meaning and knowledge

Principles of Interventions for Decoding



Cognitive approach in which students understand the reasons for what they are learning and for the learning strategies they are employing



Discourage guessing



Teach to automaticity



Provide students with immediate corrective feedback

Principles of Interventions for Decoding



Integrate reading, writing, spelling



Look at language holistically – not just phonology, but also morphology, syntax, semantics, and pragmatics



Focused on the structure of language



Link between the language we see, the language we hear, and the language symbols we feel (multisensory)

Principles of Interventions for Decoding



Intense instruction



Instruction should be followed with fidelity



Cumulative and systematic approach



Instruction should be analytic and synthetic (Whole to part and part to whole)

Content for Interventions for Decoding

- Phoneme Awareness
 - Students need to be consciously aware of the individual sounds that make up words
 - Critical skill for reading and spelling
 - Rhyming
 - Counting spoken syllables
 - Alliteration
 - Blending
 - Segmenting
 - Deleting
 - Without print – do exercises orally



Content for Interventions for Decoding

- Sound-symbol (phoneme-grapheme) correspondences
 - Alphabetic code ("t" for /t/)
 - Some are more complex (oa, ew, igh)



Content for Interventions for Decoding

Patterns and conventions of print (orthography):

- Patterns of letter use in writing
- -ck, -tch, -dge only used after short vowels
- V and J are never at the end of an English word
- F, L, S, Z are doubled at the end of a single syllable word

Syllables

- Closed (mand, can)
- Open (no, me)
- Vowel-consonant-e (take, plate)
- Vowel team (vow, mean)
- Vowel-R combinations (car, port)
- Final consonant -le (little, humble)

Content for Interventions for Decoding

- Morphology:
 - Prefixes, roots, base words, suffixes
 - Meaningful units usually spelled consistently even if pronunciation changes (define, definition; nation, national)
 - Aids in spelling (at - tract - ive; ex - press - ion)

The image shows a video player interface. On the left side of the video frame, the word "wait" is displayed in a box. Below it, there are three lines of text with blank lines for answers:

wait + ed → _____

wait + s → _____

wait + ing → _____

On the right side of the video frame, there is a video feed of a classroom. A teacher is visible in a small inset window, and several children are sitting on the floor. The video player controls at the bottom include a play button, a progress bar, and a volume icon. The top of the video player has buttons for "Video", "Share", "More", and "Hang Up".

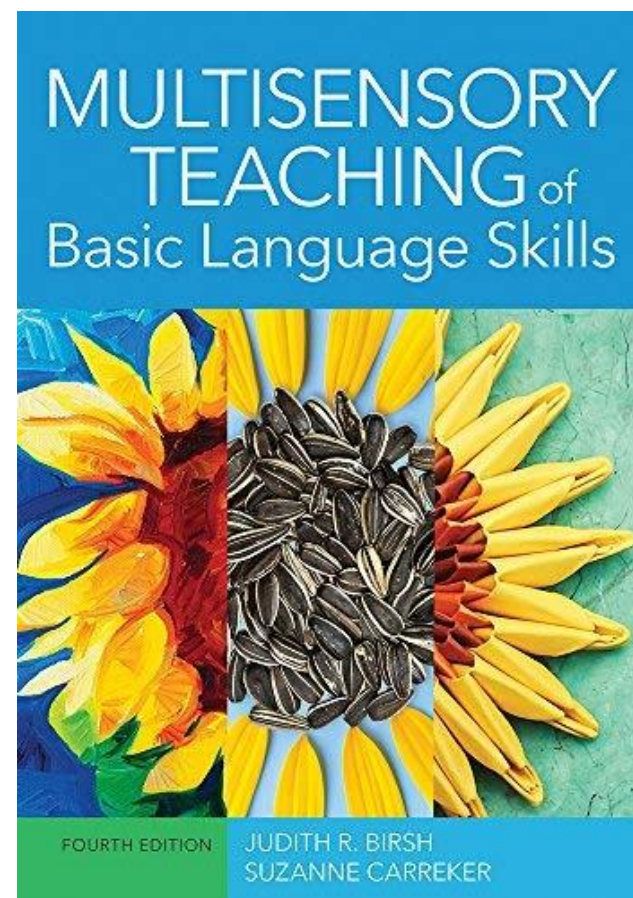
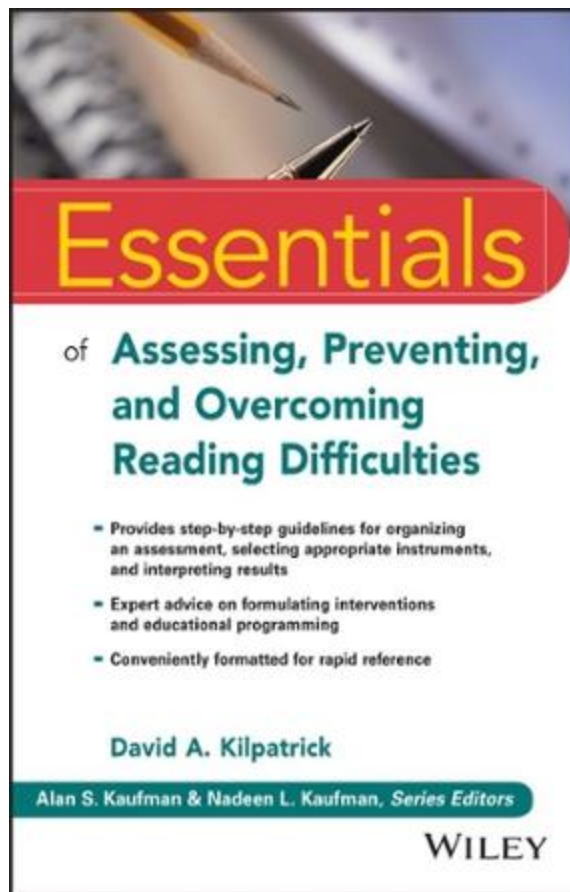
Content for Interventions for Decoding

- Syntax:
 - Word order; conventions of grammar; parts of speech
 - Interpret and formulate simple, compound, and complex sentences – phrases, clauses

Content for Interventions for Decoding

- Semantics:
 - Meaning (single words, phrases, sentences)
 - Vocabulary
 - Interpretation of phrases and sentences
 - Understanding text organization

Suggested Resources



Suggested Curriculum



Interventions for Comprehension

- Comprehension instruction must be MEANINGFUL!
- Skills must be taught in context
(Ukrainetz, 2006)



How to be
therapeutic
and natural
(Ukrainetz,
2006)



Repeated
Opportunities



Intensity



Systematic
Support



Explicit Skill
Focus

Purpose

WHY is the student engaged in an activity?

If the purpose for learning is to score well on a test,
we've lost sight of the real reason for learning.

~ Jeannie Fulbright



EmilysQuotes.Com

Steps and Strategies

Where the child is
now



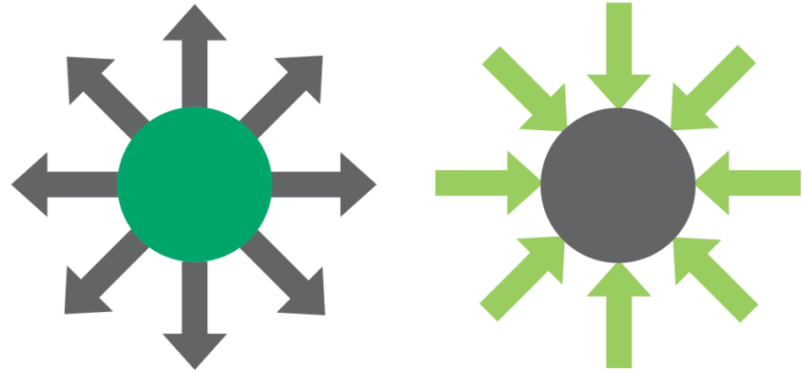
Where the child
needs to be

Condition

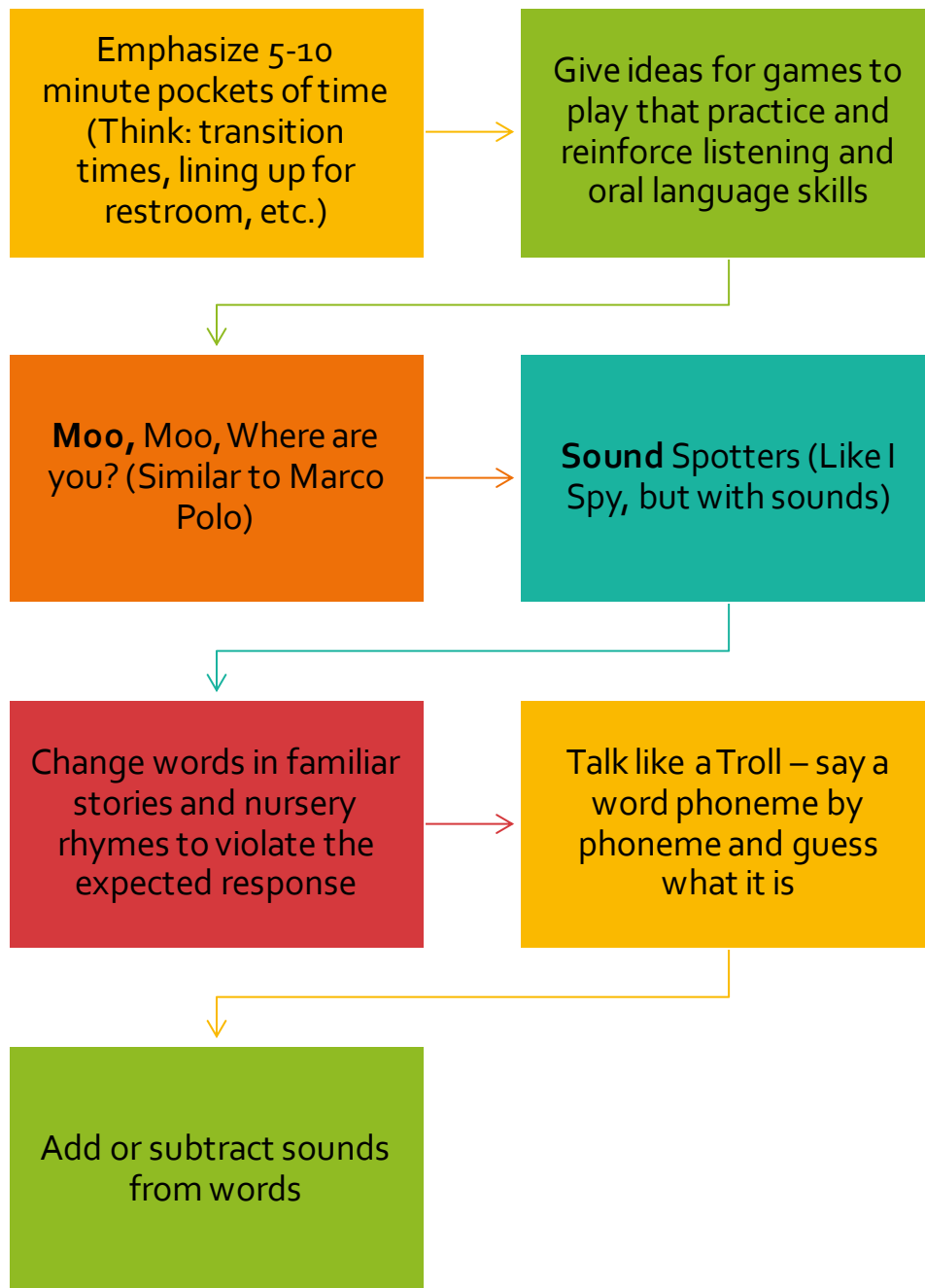
"The problem isn't always within the child, and neither is the solution."

(Nickola Wolf Nelson, 2009)

INSIDE-OUT VS. OUTSIDE-IN



Collaborating with School Professionals



Coming
Soon:

Structured
Language
and Literacy
Intervention
Certificate
at CMU!



**KEEP
CALM
AND
ASK
QUESTIONS**