

LD Module Pre-Test



*Please complete the Pre-Test
before continuing.*



Learning Disabilities

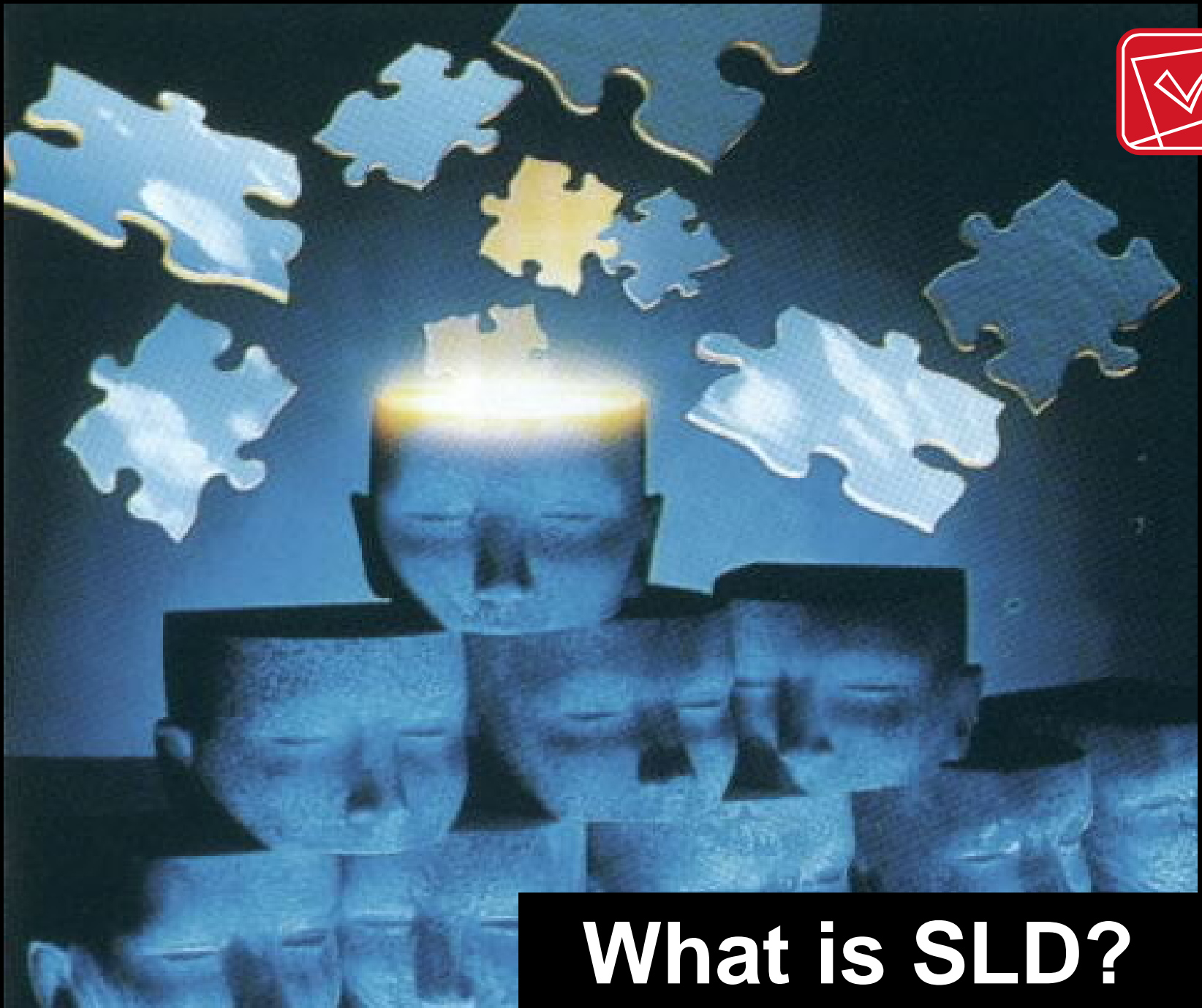
***Understanding Patterns of
Strengths & Weaknesses***



“Given what we now know about LD, it is irresponsible to continue current policies that dictate inadequate early identification practices.”

**From: Rethinking Special Education for a New Century, Chapter 12:
Rethinking Learning Disabilities**

***G. Reid Lyon, Jack M. Fletcher, Sally E. Shaywitz, Bennet A. Shaywitz,
Joseph K. Torgesen, Frank B. Wood, Ann Schulte, & Richard Olson***



What is SLD?

General Principles

Professionals must know:

- State and federal laws and regulations
 - Definitions
 - Exclusionary factors
 - Criteria for identification
- Appropriate evaluation tools & procedures
- Research on learning disabilities
- Effective instructional practices



Definition *(IDEA, 2004)* See Section 300.8(c) (10)

SLD means a disorder in 1 or more basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations.

Includes perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

Exclusionary Factors *(IDEA, 2004)*

Excludes learning problems that are primarily the result of:

- **visual, hearing, or motor disabilities**
- **mental retardation**
- **emotional disturbance**
- **environmental, cultural, or economic disadvantage**

Identification of Children with Specific Learning Disabilities (SLD)

IDEA 2004, Regulations *See Section 300.307*

- **Must not require the use of a severe discrepancy between intellectual ability and achievement**
- **Must permit the use of a process based on the child's response to scientific, research-based intervention**
- **May permit the use of alternative research-based procedures**

Criteria for Determining SLD



Does not achieve adequately for the child's age or meet State-approved grade-level standards in one or more of the following areas when provided with learning experiences and instruction appropriate for the child's age or State-approved grade-level standards:

8 areas to consider:

Oral expression

Written expression

Reading fluency

Mathematics calculation

Listening comprehension

Basic reading skills

Reading comprehension

Mathematics problem solving

Requirement to Document Appropriate Instruction and Progress Monitoring

- **Data that demonstrates child was provided appropriate instruction within general education settings AND**
- **Data-based documentation of repeated assessments of achievement at reasonable intervals (formal evaluation of progress).**

Not SLD if achievement problem is due to lack of appropriate instruction in reading or math.

Criteria for Determining SLD

Child's progress in 1 (or more) of the 8 areas is not sufficient to meet age or grade-level standards when his or her response to scientific, research-based intervention is part of determination process.

OR

Child exhibits a pattern of strengths and weaknesses in performance, achievement, or both relative to age, grade-level standards, or intellectual development, that is determined by the group to be relevant to the identification of SLD...

Criteria for Determining SLD

Are the findings in Factors 1 and 2 primarily a result of:

Visual, hearing, or motor disability

Mental retardation

Emotional disturbance

Cultural factors

Environmental or economic disadvantage

Limited English proficiency

Criteria for Determining SLD

Three factors are needed:

- 1. Under-achievement**
- 2. Insufficient progress OR pattern of strengths and weaknesses....**
- 3. Not primarily the result of.....**
 - Exclusionary factors**
 - Lack of appropriate instruction**
 - Limited English proficiency**



Appropriate Tools and Procedures

Directed to use a variety of assessment tools and strategies

Cannot rely on a single procedure as sole criterion

Professional discretion

Appropriate technical qualities

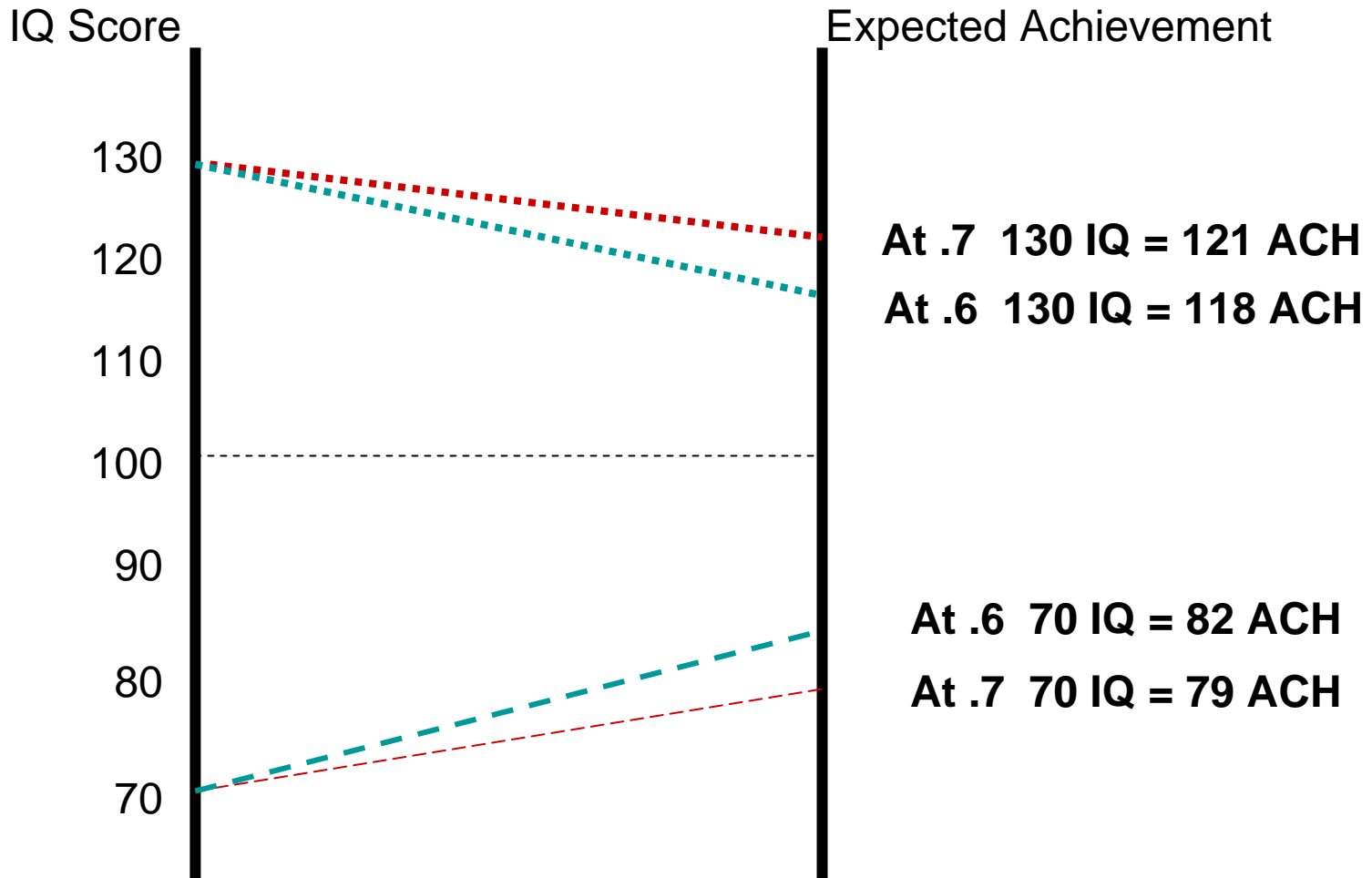
Knowledge of what the test does and does not measure

Documentation Required for Eligibility Determination

- **Statement that the child has a specific learning disability**
- **Basis for making the determination**
- **Relevant behavior and relationship to academic functioning**
- **Educationally relevant medical findings (if any)**
- **Whether the child does not achieve adequately for age or meet grade level standards**
- **Does not make sufficient progress OR exhibits a pattern of strengths and weaknesses**
- **Determination regarding exclusionary factors**

Status of IQ/Achievement Discrepancy Procedure for Determining LD Eligibility

- **May not be the sole determinant of SLD identification**
- **May be included in the determination process**
- **May not use simple difference method (IQ-ACH)**
- **Must use a standard regression procedure**
 - **Usually included in conormed tests offering IQ/Achievement discrepancy calculations**
 - **Correction for regression is required when not using conormed tests that provide a predicted method**



High correlation = less regression

Low correlation = more regression

References to Consult

The Statute

www.nichcy.org/reauth/PL108-446.pdf

<http://idea.ed.gov>

Final Part B Regulations

www.nichcy.org/reauth/IDEA2004regulations.pdf

<http://idea.ed.gov>

Texas (Commissioner's Rules, Guidance, etc.)

<http://framework.esc18.net>

www.tea.state.tx.us/special.ed



Cognitive Abilities

Assessing Cognitive Abilities

- **Important component in determining SLD**
- **Helpful when determining a pattern of strengths and weaknesses**
- **Provides information about intra-individual differences**
 - **Diagnostic value**
 - **Assists in developing appropriate interventions**



CHC Theory: Providing a Common Taxonomy

- **Multiple-factor view of intelligence**
- **Broad and narrow abilities**
- **Empirically-based**
- **Based on the work of Raymond Cattell, John Horn, and John Carroll = CHC theory**

Write a brief definition of these 7 broad CHC abilities:

Crystallized Intelligence

Long-Term Retrieval

Visual Processing

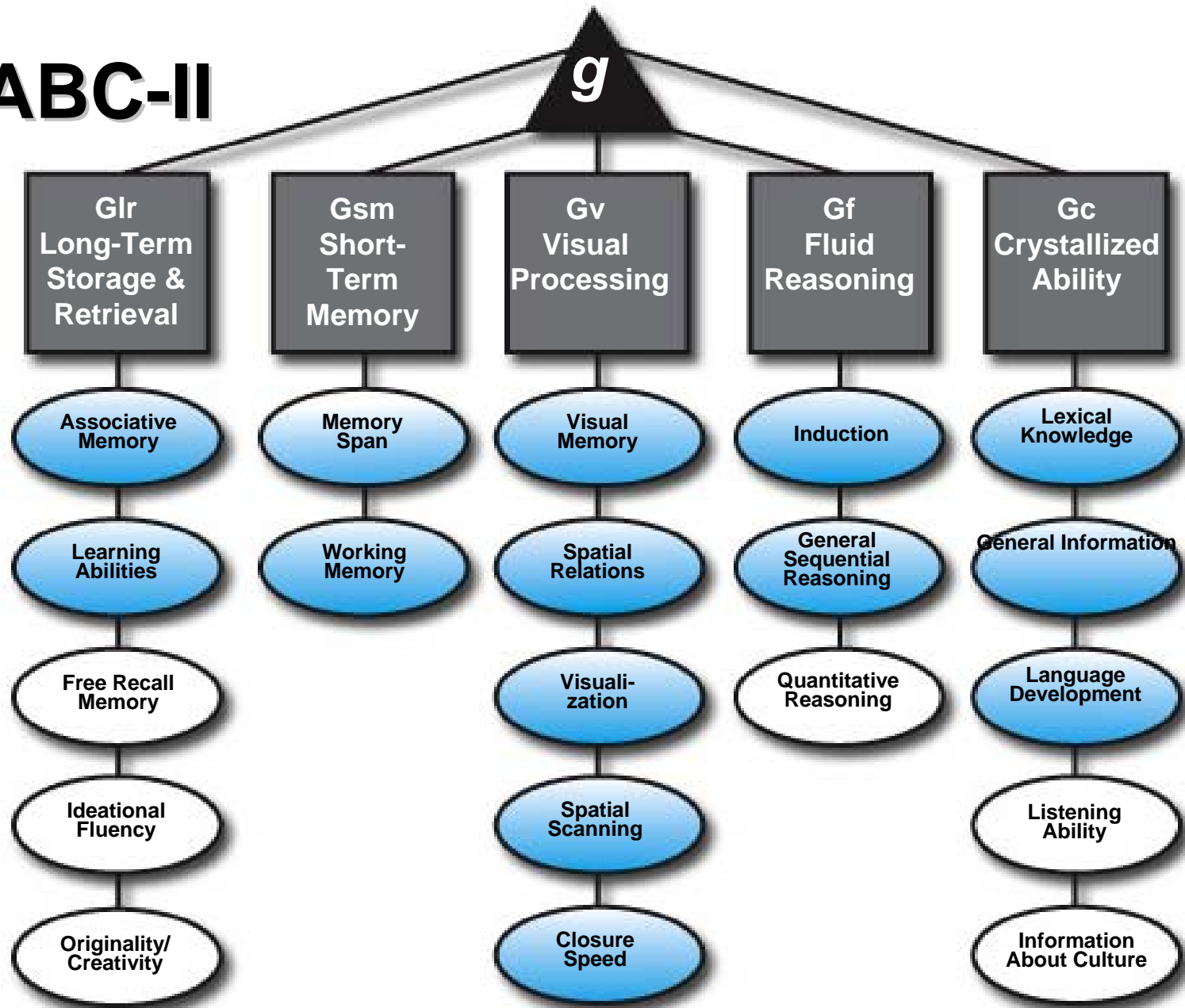
Processing Speed

Fluid Reasoning

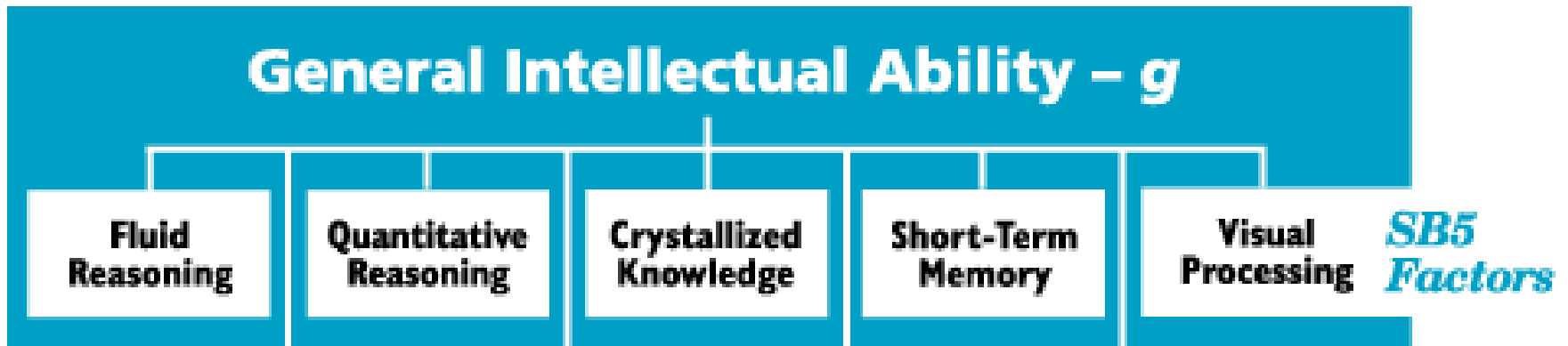
Short-Term Memory

Auditory Processing

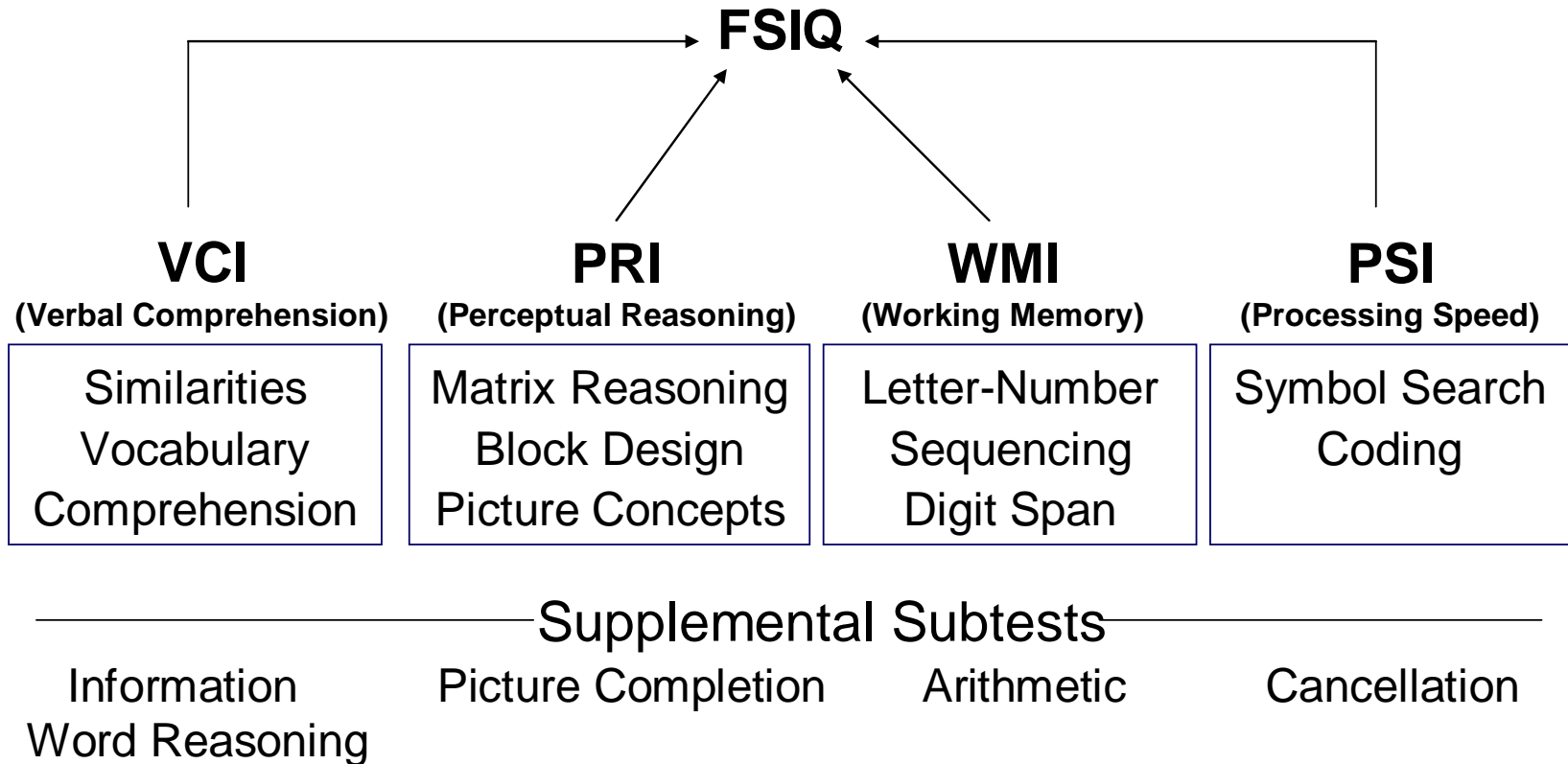
KABC-II



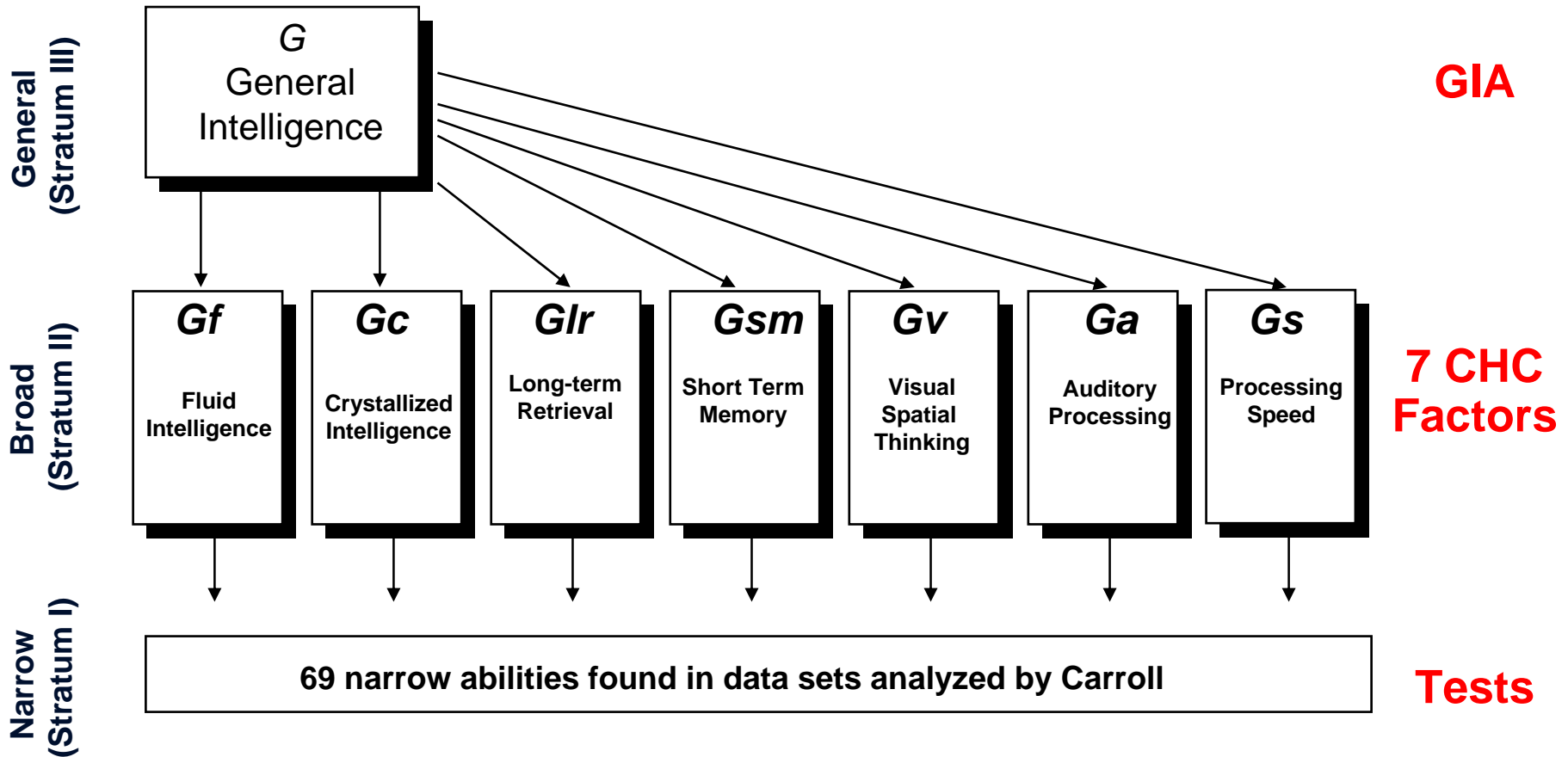
Stanford Binet 5 Model



WISC-IV MODEL



WJ III Model



Know What Your Test Does & Does Not Measure

	Gc	Gf	Glr	Gv	Ga	Gs	Gsm
KABC II	✓	✓	✓	✓			✓
SB 5	✓	✓		✓			✓
WISC IV	✓	✓		✓		✓	✓
WJ III	✓	✓	✓	✓	✓	✓	✓

SB5 also has a Quantitative Reasoning (QR) factor. In CHC theory, QR is a narrow ability of Gf.

WISC IV places Gv and Gf in the same index (Perceptual Reasoning).

Abilities Defined

Gc Verbal ability	Store of acquired knowledge, cultural and linguistic background
Gf Fluid Reasoning	Mental flexibility, deductive and inductive problem-solving abilities
Glr Long-Term Retrieval	Process of storing and retrieving information, associative memory
Gsm Short-Term Memory	Immediate memory, working memory and memory span, limited capacity system

Abilities Defined

Gv Visual Processing	Perception and manipulation of visual shapes or forms, visual-spatial thinking
Ga Auditory Processing	Perception and processing of auditory input, phonological awareness and processing
Gs Processing Speed	Automaticity, fluency, cognitive speed

Relationship to Academics

Gc Verbal ability	Strong and consistent across all academics and ages
Gf Fluid Reasoning	Significant across all academics, especially with higher level skills
Glr Long-Term Retrieval	Significant and moderate across all academics, especially in primary grades
Gsm Short-Term Memory	Significant across all academics, Working memory especially relevant to higher level skills

Relationship to Academics

Gv Visual Processing	No significant relationship as measured in IQ tests currently except with higher level math.
Ga Auditory Processing	Significant relationship across all academics during early grades
Gs Processing Speed	Significant to all academics especially in early to mid-grades



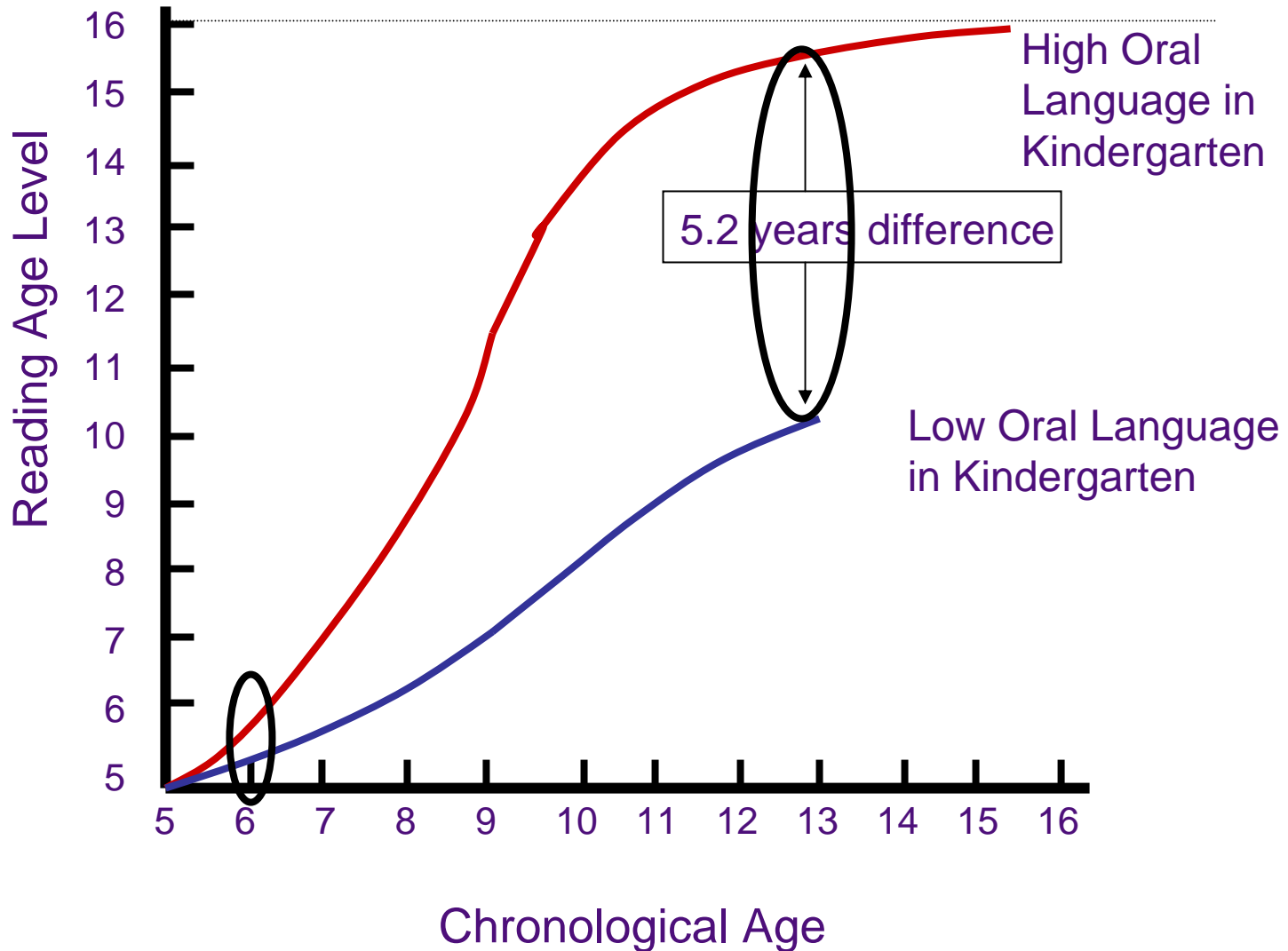
Oral Language



Importance of Oral Language

- **Lack of oral language and literacy exposure and interaction from birth-preschool years can result in deficits in phonemic awareness and word reading.**
- **Impaired knowledge of sounds, vocabulary concepts, and print concepts result from lack of opportunity to listen and interact with language in multiple contexts.**
- **Language is the foundation for learning.**

The Effects of Weaknesses in Oral Language on Reading Growth (Hirsch, 1996)



Mind the Language Gap

It is much more difficult to “close the gap” in broad knowledge and verbal skills than it is in word reading skills.

Tests of reading comprehension at third grade and up are increasingly sensitive to individual differences in verbal knowledge and reasoning.

Importance of Phonemic Awareness



A deficit in phonemic awareness is the major factor impeding development of the alphabetic principle.

A deficit in phonemic awareness significantly impacts the ability to develop accurate and fluent word reading capabilities.

A deficit in phonemic awareness can lead to compromised comprehension.



Importance of Phonemic Awareness

In Kindergarten:

1. Assess phonemic awareness
2. Assess ability to name letters and numbers
3. Assess ability to provide letter sounds

These are strong predictors of difficulties learning to read.

Developmental Sequence

- **Rhyming**
 - **most preschoolers and kindergartners are able to rhyme words**
- **Count Syllables**
 - **most first graders can count syllables, blend syllables, delete part of a compound word**
- **Perform all types of phonemic activities**
 - **most second graders**

Rapid Automated Naming (RAN)

Ability to rapidly retrieve and label visual symbols

A.) **Phonological connection:** RAN tasks correlate highly with other phonological skills; shows a unique causal relationship with early literacy. (Torgesen and Burgess, 1998)

B.) **Orthographic connection:** RAN related to visual and speed components needed for reading; disruption in automatic process of quick word recognition (Bowers and Wolf, 1993).

Early Warning Signs: Preschool

- **Late talking, compared to other children.**
- **Pronunciation problems.**
- **Slow vocabulary growth, often unable to find the right word.**
- **Difficulty rhyming words.**
- **Trouble learning numbers, the alphabet, days of the week.**
- **Extremely restless and easily distracted.**
- **Trouble interacting with peers.**
- **Poor ability to follow directions or routines.**

Reading

“Children who get off to a poor start in reading rarely catch up. We wait---they fail. But it does not have to be this way.”

**From: Rethinking Special Education for a New Century, Chapter 12:
Rethinking Learning Disabilities**

***G. Reid Lyon, Jack M. Fletcher, Sally E. Shaywitz, Bennet A. Shaywitz,
Joseph K. Torgesen, Frank B. Wood, Ann Schulte, & Richard Olson***

Early Identification/Intervention

“Exclusion from the basic right to learn.”

- **Since underlying causes of early reading difficulty are similar for children regardless of placement/services, early intervention should occur through regular education.**
- **Special education professionals should become specialists in prevention.**
- **Without early intervention, the poor reader does not catch up (CT. study)**

Early Warning Signs: K-4

- **Slow learning connection between letters and sounds**
- **Confuses basic words (was/saw, then/them).**
- **Makes consistent reading and spelling errors including letter reversals (b/d), inversions (m/w), transpositions (felt/left), and substitutions (house/home)**
- **Transposes number sequences (14 for 41) and confuses arithmetic signs (+, -, x, /, =)**
- **Slow recall of facts**
- **Slow to learn new skills, relies heavily on memorization**
- **Impulsiveness, lack of planning**
- **Unstable pencil grip**
- **Trouble learning about time**
- **Poor coordination, unaware of physical surroundings, prone to accidents**



“We estimate that the number of children who are typically identified as poor readers and served through either special education or compensatory education programs could be reduced by up to 70 percent through early identification and intervention programs.”

**From: Rethinking Special Education for a New Century, Chapter 12:
Rethinking Learning Disabilities**

***G. Reid Lyon, Jack M. Fletcher, Sally E. Shaywitz, Bennet A. Shaywitz,
Joseph K. Torgesen, Frank B. Wood, Ann Schulte, & Richard Olson***



Predictors of Reading

1. Phonemic awareness
2. Speed & accuracy of reading single words
3. Vocabulary
4. Background knowledge
5. Knowledge of semantics and syntax
6. Knowledge of writing conventions
7. Verbal reasoning ability
8. Ability to recall and remember verbal information

Alphabetic Principle

Good readers have figured out that letters and letter patterns represent segmented units of sounds (phonemes).

Poor readers have difficulty making this connection.

Remember:

A deficit in phonemic awareness is the primary culprit.

Hereditary Factors

Strong converging evidence suggests:

- 1. There is a genetic cause for some types of reading disability**
- 2. Deficits in phonemic awareness are the primary hereditary factor**
- 3. Family history is a key indicator of risk**

Shaywitz, 2001, Overcoming Dyslexia

Phonology versus Orthography

Phonology: the sounds of a language

Orthography: the marks of a writing system, including the spelling patterns of a language

Reading and spelling nonwords that adhere to English spelling rules requires both abilities.

Characteristics of Phonological Reading Disabilities

Early Speech/Language Difficulties

- Articulation errors
- Mispronunciations of multisyllabic words

Decoding/Encoding

- Trouble remembering sound-symbol relationships
- Confusion with similar-sounding sounds
- Difficulty sequencing sounds in a word
- Overreliance on whole-word, context, or visual clues
- Trouble pronouncing phonically regular nonsense words
- Difficulty using phonological analysis (omits or adds sounds or letters)
- Slow reading rate

Characteristics of Orthographic Reading Disabilities

Symbols/Decoding/Encoding/Calculating

- Difficulty learning how to form symbols
- Confusion of symbols similar in appearance (e.g., b for d, n for u)
- Trouble with near- and far-point copying tasks
- Tendency to reverse or transpose letters or numbers
- Trouble remembering how words look
- Trouble reading exception or irregular words
- Trouble with accurate and rapid word recognition; slow reading speed
- Tendency to use different spellings for the same word
- Tendency to omit word endings
- Overreliance on phonological rather than visual features
- Trouble learning and retaining basic math facts
- Difficulty counting in a sequence (e.g., counting by 2)
- Trouble with multistep math problems



Why is it important for children to acquire good phonemic decoding skills (phonics) early in reading development?

Answer

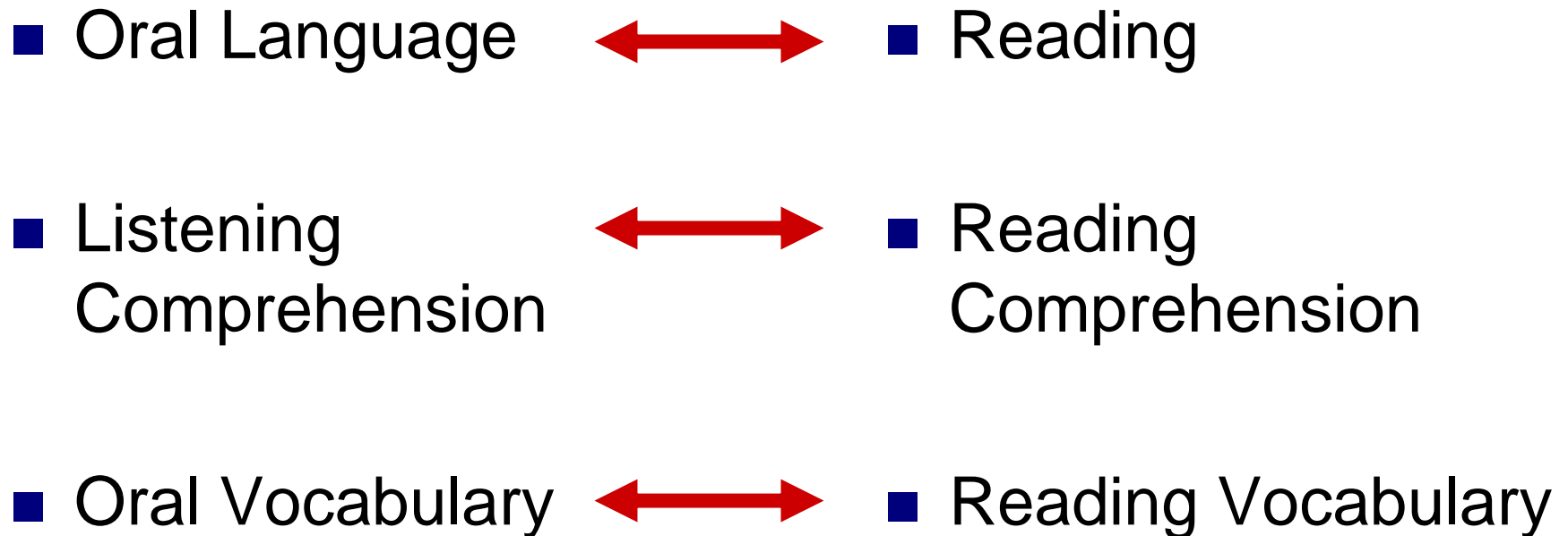
Learning to read involves *everyday* encounters with words the child has never before seen in print.

Phonemic analysis provides the most important single clue to the identity of unknown words in print.

Reasons for Difficulties in Reading Comprehension

- **phonological deficits**
- **word recognition/decoding deficits**
- **vocabulary deficits & inadequate background knowledge**
- **lack of familiarity with semantic and syntactic structures**
- **lack of knowledge about different writing conventions**
- **lack of verbal reasoning ability**
- **limited ability to remember and/or recall verbal information**

Determining the Presence of a Reading Disability



Determining the Presence of a Reading Disability

- Basic Reading Skills ↔ Reading Comprehension
- Real words ↔ Nonsense words
- Reading fluency ↔ Fluency on other types of tasks (math, writing, cognitive)

Reading Disability: Yes, No, Maybe?



Reading Composite	93
Basic Reading Skills	74
Reading Comprehension	92
Real Words	88
Nonsense Words	70
Reading Fluency	89
Reading Vocabulary	94
Oral Language	115
Listening Comprehension	110
Oral Vocabulary	112

**Write down
what you
think.**

**Explain
your
thinking.**

**What other
information
do you
need?**

Note: 5th grade student

Written Language

Written Language Disabilities

Predictors of those at risk:

- **Early grades**

weakness in speech sound awareness

- **Later grades**

difficulty understanding spelling rules, word structures, and letter patterns

- **Orthographic memory problems**

visual memory difficulty with words and letters only

Developmental Spelling Stages

- 1. Prephonetic** **Strings letters (and sometimes numbers) together randomly**
- 2. Semi-phonetic** **Represents sounds with letters, but mostly consonants and long vowels are represented.**
- 3. Phonetic** **Spells words the way they sound.**
- 4. Transitional** **Incorporates common spelling patterns.**
- 5. Correct spelling** **Uses knowledge of phonology, orthography, morphology, and semantics in spelling.**



showt
corekt
belueve
sogjestchon
ecwiptment
literichur
preshose
egzecutive
phisishon

shout
correct
believe
suggestion
equipment
literature
precious
executive
physician

Handwriting

Automaticity of letter retrieval and formation is key.

- **predicts quality of composition** (Berninger, et al)
- **frees up cognitive energy for higher-level tasks (e.g. organization, creative development, etc.)**

Difficulties may be related to a combination of factors (fine-motor problems, difficulty with orthographic memory, opportunity for instruction, practice, and reinforcement of skills)

Basic Writing Skills

Teach handwriting and spelling as tools for communicating ideas.

Begin writing exercise with a warm-up in handwriting or spelling.

Move to planning, writing, reviewing, and revising text.

Better progress when low-level skills are integrated into higher-level activities.

Written Expression

Planning what to write is difficult for beginning and disabled writers.

Provide guided assistance

- **composition prompts (story starters)**
- **teacher queries (what else can you think of?)**
- **graphic organizers**
- **explicit modeling (teacher thinks aloud)**

Teach self-regulation strategies

- **What I think, I can say, what I say, I can write**
- **Plan, Write, Review, Revise (PWRR)**

Determining the Presence of a Writing Disability

- **Writing speed to ideation**
- **Ideation to oral language abilities**
- **Spelling on expressive writing tasks to tests of spelling.**
- **Writing fluency to other fluency measures**

Writing Disability: Yes, No, Maybe?



Writing Composite	61
Basic Writing Skills	63
Written Expression	71
Spelling real words	60
Spelling nonsense words	67
Writing Fluency	68
Oral Language	61
Listening Comprehension	63
Oral Vocabulary	70

**Write down
what you
think.**

**Explain
your
thinking.**

**What other
information
do you
need?**

Note: 6th grade student



Mathematics



Common Characteristics of Individuals With Math Disabilities

- **Trouble remembering basic facts**
 - **Trouble storing &/or retrieving basic facts**
 - **Trouble inhibiting facts**
- **Use of immature problem-solving procedures**
- **Trouble sequencing steps in complex problems**

Qualitative Considerations for Math

Does the individual demonstrate visual confusion?

- **visual-motor coordination**
- **spatial organization of numbers on the page**

Distinguish between errors resulting from visual confusion and errors resulting from math difficulty.

What is the individual's processing speed?

- **performance on math fluency task**
- **performance on a cognitive speed task**

Qualitative Analysis of Math

Calculation

- Errors typically rule governed (misunderstands, misapplies, or makes up own rule)
- Observe manner used to solve problems. Were inefficient processes used? Were they developmentally appropriate?

Math Fluency/Timed Fact Tests

- Errors: inattention to signs, lack of understanding of operation, poor fact knowledge
- Correct, but few completed: lack of automaticity, slow processing speed

Observe Behaviors & Strategies Employed

- A. Examinee comments, expressions, gestures**
- B. Uses finger counting**
- C. Know facts rapidly and automatically**
- D. Skips certain types of problems**
- E. Look at errors**
 - 1. Is the concept understood?**
 - 2. Are answers sensible?**
 - 3. Source of the confusion?**
 - 4. Pattern to mistakes?**
 - 5. Trouble with basic facts?**

Relationship to Reading Disabilities



- **Over 50% of math disabled also have reading disabilities**
- **Common memory problem (fact retrieval & letter-sound/word retrieval)**

Possible Subtypes of Math Disability

- **Procedural disorder characterized by:**
 - using developmentally immature procedures
 - developmental delay in understanding the concepts underlying the procedures
 - frequent errors in the execution of the procedures
 - difficulty sequencing the multiple steps in complex procedures
- **Semantic disorder characterized by:**
 - limited ability to retrieve math facts
 - facts retrieved are frequently wrong
 - error responses associated with the numbers
 - solution time for correct solutions is not systematic
- **Visuospatial disorder characterized by:**
 - difficulty with spatial representation of numbers
 - place value errors
 - difficulties in area of math that depend on spatial, e.g., geometry

Math Disability: Yes, No, Maybe?



Math Composite	78
Basic Math Skills	68
Math Reasoning	81
Math Fluency	58
Oral Language	94
Listening Comprehension	96
Oral Expression	93

**Write down
what you
think.**

**Explain
your
thinking.**

**What other
information
do you
need?**

Note: 7th grade student

LD Module Post-Test



*Please complete the Post-Test.
Compare results from your Pre- &
Post-Tests.*